

Auxiliary Equipment

GROUP
35

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PART 35-01 General Auxiliary Equipment Service

Refer to the Wiring and Vacuum Diagrams Manual Form 7795P-70 for electrical schematic wiring diagrams

and the locations of wiring harnesses.
Refer to the Car Diagnosis Manu-

al, Form FD 7962 for diagnosis pro-
cedures.

PART 35-02 Radio, Radio and Stereo Tape Player and Stereo Tape Player Deck

COMPONENT INDEX Applies to Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
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A page number indicates that the item is for the vehicle(s) listed at the head of the column.

N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION AND IDENTIFICATION

DESCRIPTION

The various radio options which are available are given in the radio application chart, Group 30. For operation of the various radio options, refer to the vehicle owners manual.

IDENTIFICATION

The radio can be identified by the numbers located on the right or left outside sides of the radio chassis.

These numbers may be metal stamped, paint stamped, or a combination of both metal and paint stamped numbers. A sample number and number identification is shown in Group 30.

2 TESTING

RADIO TEST

A radio tester, Tool T65P-18805-A, is designed for in the car use to rapidly diagnose radio malfunctions to determine if the problem is in the radio, antenna, or the speaker. The radio tester can save considerable time in servicing all models and makes of radios. Use of the tester eliminates the need for substituting known quality components.

STEREO TAPE SYSTEM TEST

Insert tool aid cartridge, (T66P-

19A043-A), label side up, into the player. Turn the player on by rotating the volume control (left knob) clockwise approximately 1/2 turn. Set the tone control (ring knob behind the volume control) at full clockwise rotation. Set the channel balance control (right ring knob) at approximately mid position. Let the tape run until music starts playing, then re-adjust the controls for desired volume, tone and balance.

After approximately 15 seconds of music a voice announcement, "Sound should come from both sides of vehicle." Followed by music.

Following the music is a voice announcement, "Left channel following." Sound should come from the left side of vehicle; rotate the balance control, the ring knob behind the station selector knob right side. Left channel following. Followed with a 20-second tone.

Next, a voice announcement, "Right channel following." Sound should come from right side of vehicle. Followed with a 20-second tone.

Next, a voice announcement, "Stereo four channel identification. By successively pressing in on the volume control knob, the channels

should switch in order 1 to 2 to 3 to 4 to 1 etc. Stereo four channel identification following." Followed with a 30-second channel test emission.

Near the end of the above channel

identification test, a voice announcement, "Track switching following." The tape player should automatically advance to the next stereo channel. "Track switching following." Fol-

lowed with the test emission.

A voice announcement, "Check out procedure complete. Remove the cartridge and check the operation of the radio."

3 ADJUSTMENTS

PUSH BUTTON ADJUSTMENT

Turn the radio on, and allow it to warm up for 15 minutes. Extend the antenna to a height of approximately 33 inches.

AM RADIO AND AM RADIO STEREO TAPE PLAYER

Pull out the push button to be set to unlock the push button mechanism. Tune in the desired station with the manual tuning knob. After the station is clearly tuned in, push the button straight in until it stops, then release it.

Repeat this procedure for the remaining buttons.

AM—FM RADIO

Slide the band selector to the left to set the radio for AM-band reception. Pull out the push button to be set to unlock the push-button mechanism. Tune in the desired AM station with the manual tuning control. When the station is clearly tuned in, push the push button in firmly and release it. This will set the push button for that station. Repeat this procedure

for the remaining push buttons. Then, adjust the same five push buttons for FM stations by sliding the band selector to the right and repeating the above push button adjustment procedure.

ANTENNA TRIMMER ADJUSTMENT

Fading or weak radio reception due to an inadequate signal pick-up may, in some instances, be corrected by adjusting the antenna trimmer. The trimmer is located at the right rear or the front side of the radio. It must be noted that fading or weak reception may be due to an improperly extended antenna, faulty antenna or radio.

1. Inspect the antenna lead-in plug and socket to be sure that they are clean. Clean them if required.

2. Extend the antenna to its maximum length, and position the vehicle in an open area away from steel buildings.

3. Turn the radio on and allow it to play for about five minutes. This will allow the radio to reach normal operating temperature.

4. Tune the radio to a weak station

around 1600 KC (16 on the dial). Adjust the volume control so that the station is barely audible.

5. Adjust the antenna trimmer to obtain maximum signal strength (volume) from the station.

STEREO TAPE PLAYER PLAYBACK HEAD AND CAPSTAN CLEANING

The playback head and capstan in your tape plaer may accumulate tape coating residue (oxide) as the tape passes over the head. This accumulation may need to be periodically removed, as part of normal maintenance, if it causes weak or wavering sound. This should be done by holding the player cartridge door open and cleaning the playback head with a cotton swab, slightly moistened with alcohol. To clean the capstan, trip the on-off switch at the rear of the cartridge slot with the eraser end of a pencil and hold the alcohol moistened swab against the rotating capstan.

Excess alcohol on the swab may run down the capstan and damage the bearings. Do not use carbon tetrachloride.

4 REMOVAL AND INSTALLATION

RADIO—FORD AND METEOR

REMOVAL

1. Disconnect the battery ground cable.
2. Remove the radio, windshield wiper, windshield washer, and intermittent windshield wiper control knobs.
3. Remove the lighter element and pull off the heater switch knobs.
4. Remove the ten screws retaining the instrument panel trim cover as-

sembly and remove the assembly.

5. Remove the lower rear radio support bolt (Fig. 1).

6. Remove the three nuts retaining the radio to the instrument panel. Pull the radio part way out.

7. Disconnect the power, antenna, and speaker. Remove the radio.

INSTALLATION

1. Position the radio part way onto the instrument panel (Fig. 1).

2. Connect the radio power, antenna, and speaker lead.

3. Position the radio all the way onto the instrument panel and install the lower rear support bolt. Then, fasten the radio to the instrument panel (Fig. 1).

4. Install the instrument panel trim cover.

5. Replace the lighter element and the control knobs.

6. Adjust the selector buttons for the desired stations.

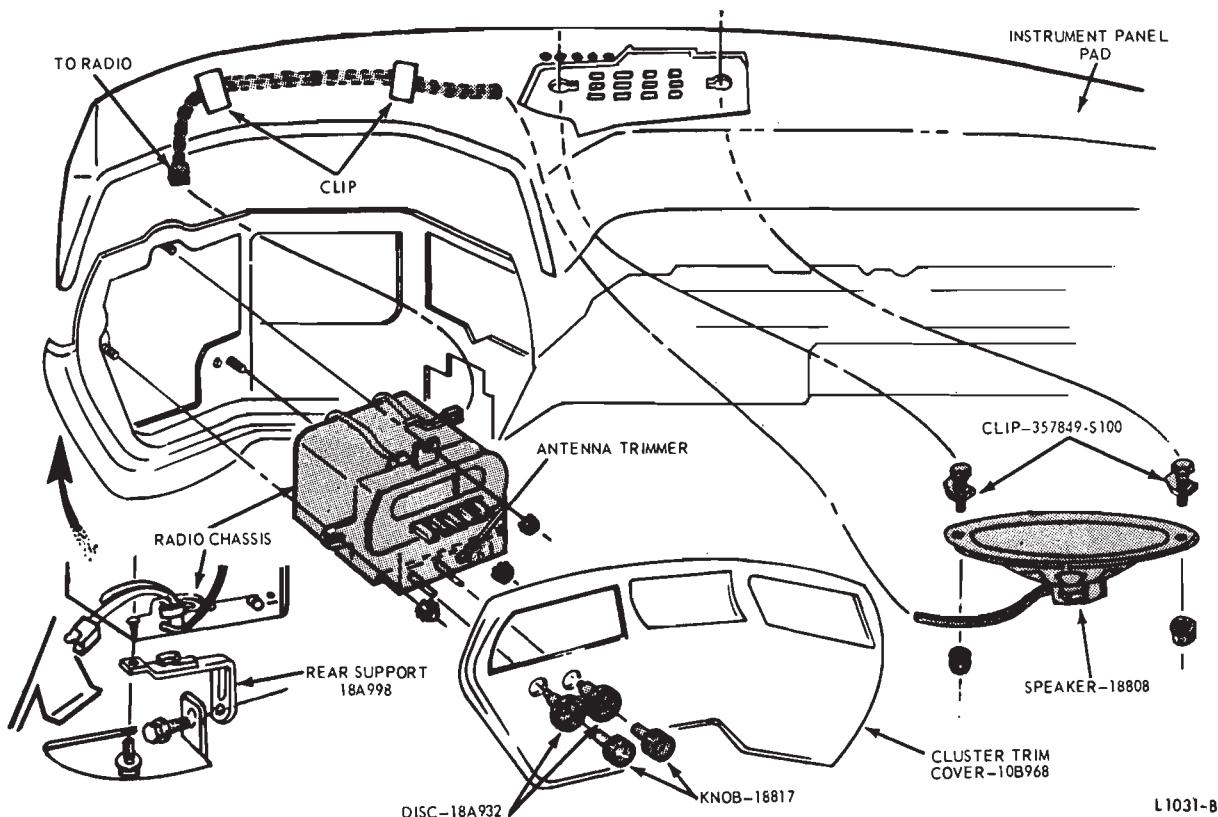
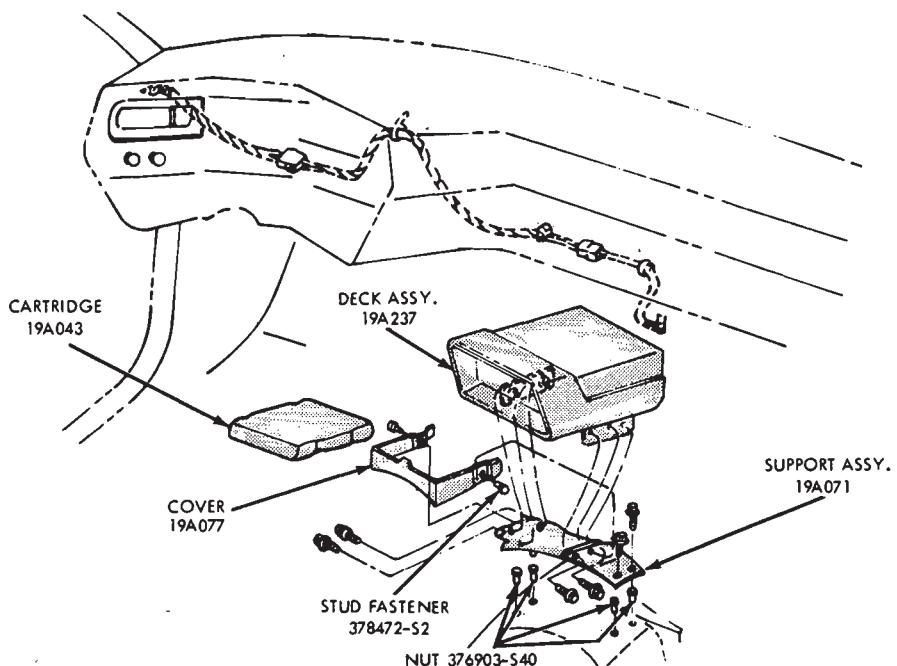


FIG. 1—Ford and Meteor Radio Installation



L1311-A

FIG. 2—Stereo Tape Player Deck Assembly—Ford and Meteor

TAPE DECK PLAYER— FORD AND METEOR

I. Remove two stud fasteners attaching the mounting bracket cover to the bracket (Fig. 2).

2. Disconnect the tape deck wires at the wire connector.

3. Remove four screws attaching the tape deck to the bracket, and remove the tape deck.

4. Position the tape deck to the mounting bracket and install the attaching screws.

5. Install the mounting bracket cover and connect the wires.

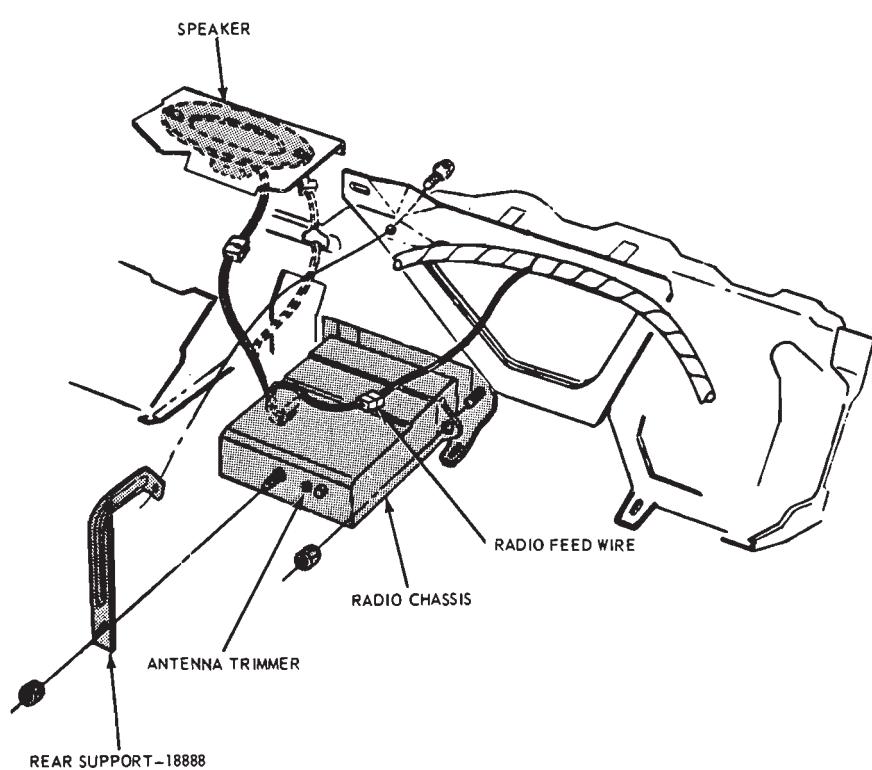


FIG. 3—Mercury Radio Installation

RADIO—MERCURY**REMOVAL**

1. Disconnect the battery ground cable.
2. Remove the radio knobs and remove the nut from the radio shaft.
3. Remove the radio lower rear support nut and the nut retaining the radio to the instrument panel (Fig. 3).
4. Lower the radio and disconnect the antenna, radio power, and speaker lead wires. Remove the radio.

INSTALLATION

1. Connect the radio antenna, speaker lead wires and radio power.
2. Position the radio to the instrument panel and install the shaft nut.
3. Install the two radio support nuts (Fig. 3).
4. Replace the radio knobs and connect the battery.
5. Check the radio for proper operation.

RADIO—MAVERICK**REMOVAL**

1. Disconnect the battery ground cable.

2. Remove the radio rear support nut and lockwasher (Fig. 4).
3. Remove the four radio-to-instrument panel retaining screws.
4. Pull the radio from the instrument panel and at the same time disconnect the antenna, power and speaker connectors.
5. Remove the radio.
6. Remove the knob and disc assemblies.
7. Remove the two bezel retaining nuts and remove the bezel.

INSTALLATION

1. Position the bezel on the radio and install the two bezel retaining nuts (Fig. 4).
2. Install the disc and knob assemblies.
3. Connect the antenna, speaker and power connectors.
4. Position the radio so that the rear support mounting bolt enters the hole in the rear support mounting bracket.
5. Install the four radio-to-instrument panel retaining screws.
6. Install the radio rear support nut and lockwasher.
7. Position the speaker and power wire harnesses in the clip on the bezel.

8. Connect the battery negative ground cable.
9. Check the operation of the radio.
10. Adjust the selector buttons for the desired stations.

RADIO—MUSTANG AND COUGAR**REMOVAL**

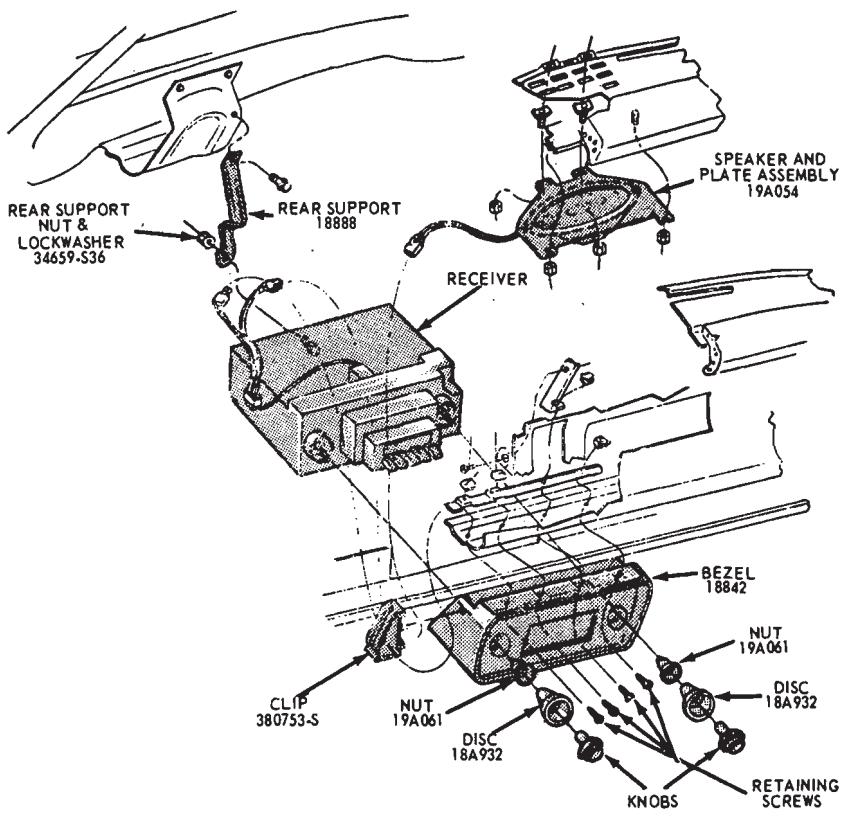
1. Disconnect the battery ground cable.
2. Pull the control knobs, discs and sleeve from the radio control shafts.
3. Remove the radio applique from the instrument panel (Fig. 5).
4. Remove the right and left finish panels.
5. Remove the two mounting plate attaching screws (Fig. 5).
6. Pull the radio out of the instrument panel and disconnect the wires from the radio.
7. Remove the mounting plate and rear support from the radio.

INSTALLATION

1. Install the mounting plate and rear support on the radio (Fig. 5).
2. Position the radio near the radio opening and connect the wires to the radio.
3. Install a jumper wire to ground the radio chassis to the instrument panel.
4. Connect the battery ground cable and check the operation of the radio. Adjust the antenna trimmer.
5. Disconnect the battery ground cable and remove the jumper wire.
6. Insert the radio and wires into the instrument panel opening. Be sure the radio rear support slips over the instrument panel reinforcement (Fig. 6).
7. Install the mounting plate attaching screws.
8. Install the left and right finish panels.
9. Install the radio applique, sleeve, discs, and control knobs.
10. Connect the battery ground cable and set the radio push buttons.

RADIO—FAIRLANE, FALCON, AND MONTEGO**REMOVAL**

1. Disconnect the battery negative (ground) cable.
2. Pull the radio control knobs off the radio shafts.
3. Remove the radio support to in-



L1210-A

FIG. 4—Maverick Radio Installation

strument panel attaching screw (Fig. 6).

4. Remove the two bezel nuts from around the radio control shafts. Then, lower the radio and disconnect the speaker, power and antenna wires from the radio chassis.

INSTALLATION

1. Connect the speaker, power and antenna wires to the radio chassis.

2. Position the radio to the instrument panel and install the two bezel nuts. Torque the bezel nuts to 30-35 in-lbs torque.

3. Install the radio support bracket to instrument panel attaching screw and torque to specification 30-35 in-lbs torque.

4. Connect the battery ground

cable.

5. Adjust the antenna trimmer, if necessary.

6. Install the radio control knobs and set the push buttons for the desired stations.

RADIO—LINCOLN CONTINENTAL

REMOVAL

1. Disconnect the battery ground cable.

2. Remove the map light assembly.

3. Remove the right and left inspection covers.

4. Remove the lower instrument panel pad (Group 47).

5. Remove the glove box. Open the ash tray and let it hang open.

6. Remove the glove box switch.

7. Through the glove box opening remove two nuts retaining the radio finish panel to the instrument panel.

8. Remove the radio knobs.

9. Remove two screws at the top of the finish panel. Position the panel out and disconnect the cigar lighter and light from the right panel.

10. Through the glove box opening remove the nut from the lower right corner of the center finish panel.

11. Remove the radio top support nut and the three mounting screws (Fig. 7). Pull the radio out, disconnect the power leads and the antenna cable, and remove the radio.

INSTALLATION

1. Position the radio to the instrument panel, connect the antenna cable and the power leads. Install the three mounting screws and the top mounting nut.

2. Position the radio finish panel and install the three mounting nuts at the right side and the two screws at the top.

3. Connect the cigar lighter and glove box light.

4. Install the radio knobs and close the ash tray.

5. Install the glove box, and install the lower instrument panel pad (Group 47).

6. Install the right and left inspection covers and the map light.

7. Connect the battery ground cable.

8. Set the station selector buttons and check the radio operation.

RADIO—THUNDERBIRD AND CONTINENTAL MARK III

REMOVAL

1. Disconnect the ground cable from the battery.

2. Pull the knobs off the radio control shafts.

3. Remove the cover plate located below the steering column.

4. Remove the nut from the right radio control shaft.

5. Remove six screws and remove the trim applique from in front of the radio (Figs. 7, 8 and 9).

6. Remove the nut and washer from the right radio control shaft.

7. Remove the screw attaching the front left side of the radio to the instrument panel.

8. Remove the radio rear support attaching screw.

9. Disconnect the radio power wires and speaker wires at the con-

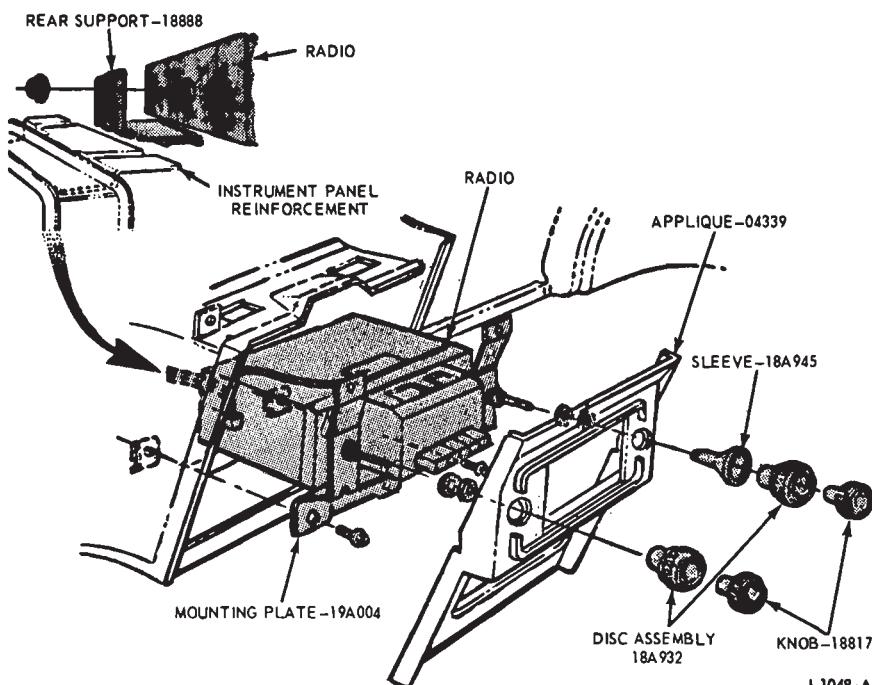


FIG. 5—Radio Installation—Mustang and Cougar

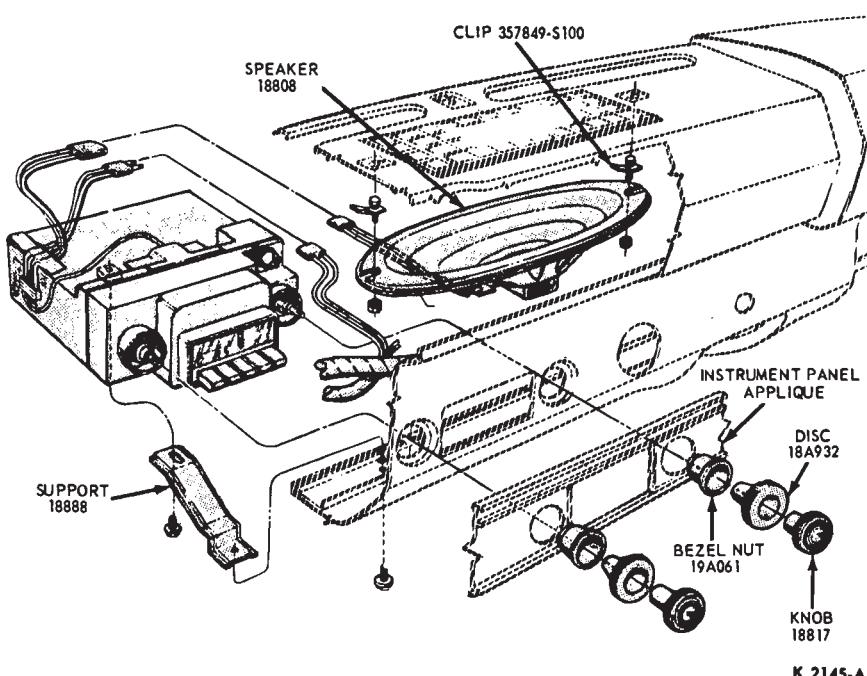


FIG. 6—Radio Installation—Falcon, Fairlane, and Montego

nectors.

10. Disconnect the antenna lead-in cable and remove the radio.

INSTALLATION

1. Connect the power, speaker, and antenna leads to the radio.

2. Position the radio to the instrument panel and install the attaching screw at the left front side of the radio.

3. Install the washer and nut on the radio right control shaft.

4. Install the radio rear support attaching screw.

5. Position the trim applique to the instrument panel and install the six attaching screws.

6. Install the nut on the radio right control shaft.

7. Install the discs, felt washer, and knobs on the radio control shafts (Figs. 13, 14 and 15).

8. Install the cover plate below the steering column.

9. Connect the ground cable to the battery.

10. Check the operation of the radio, and set the push buttons.

RADIO INTERFERENCE SUPPRESSION

The interference suppression equipment installations for the various models are shown in Figs. 10 through 15.

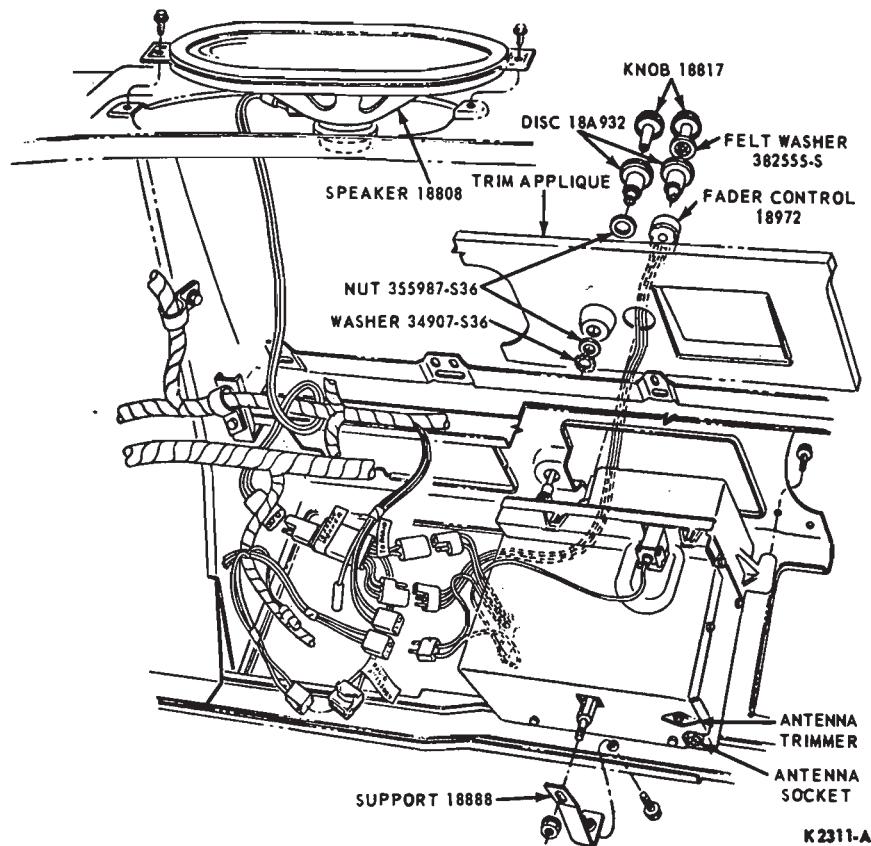


FIG. 7—AM Radio Installation—Thunderbird and Continental Mark III

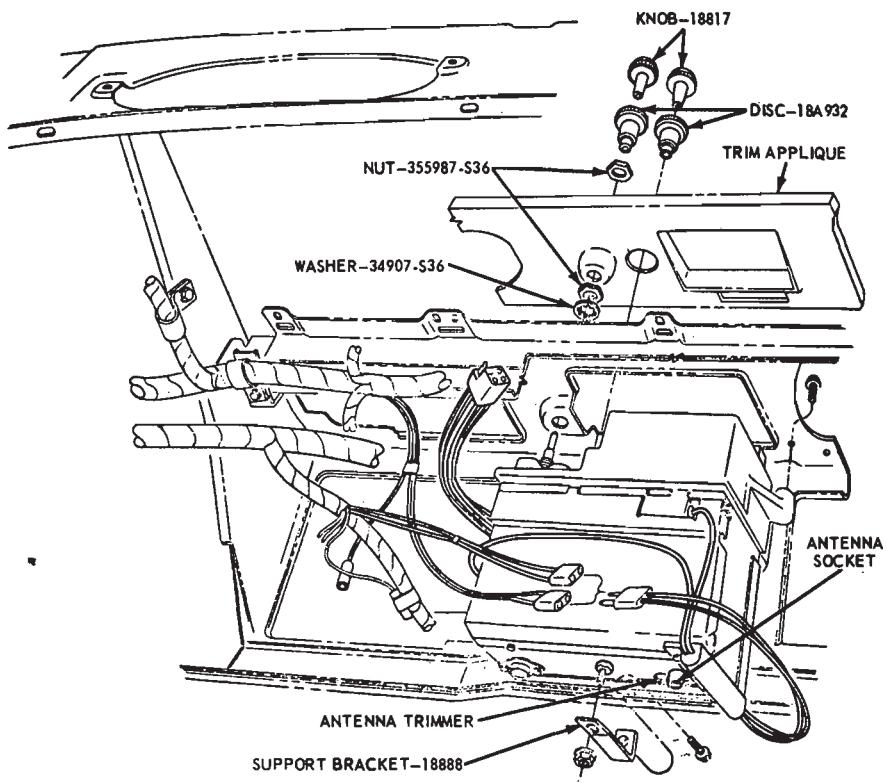


FIG. 8—AM-FM Radio Installation—Thunderbird—Typical AM-FM Multiplex

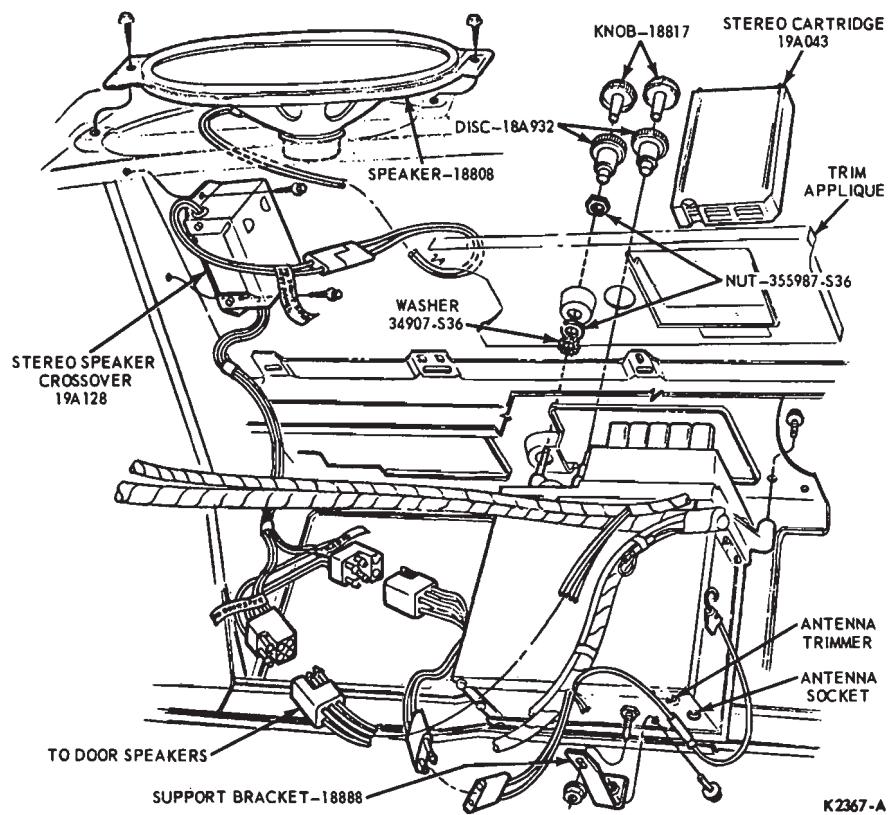


FIG. 9—AM Radio—Stereo Tape Player Installation—Continental Mark III—Typical AM-FM Multiplex

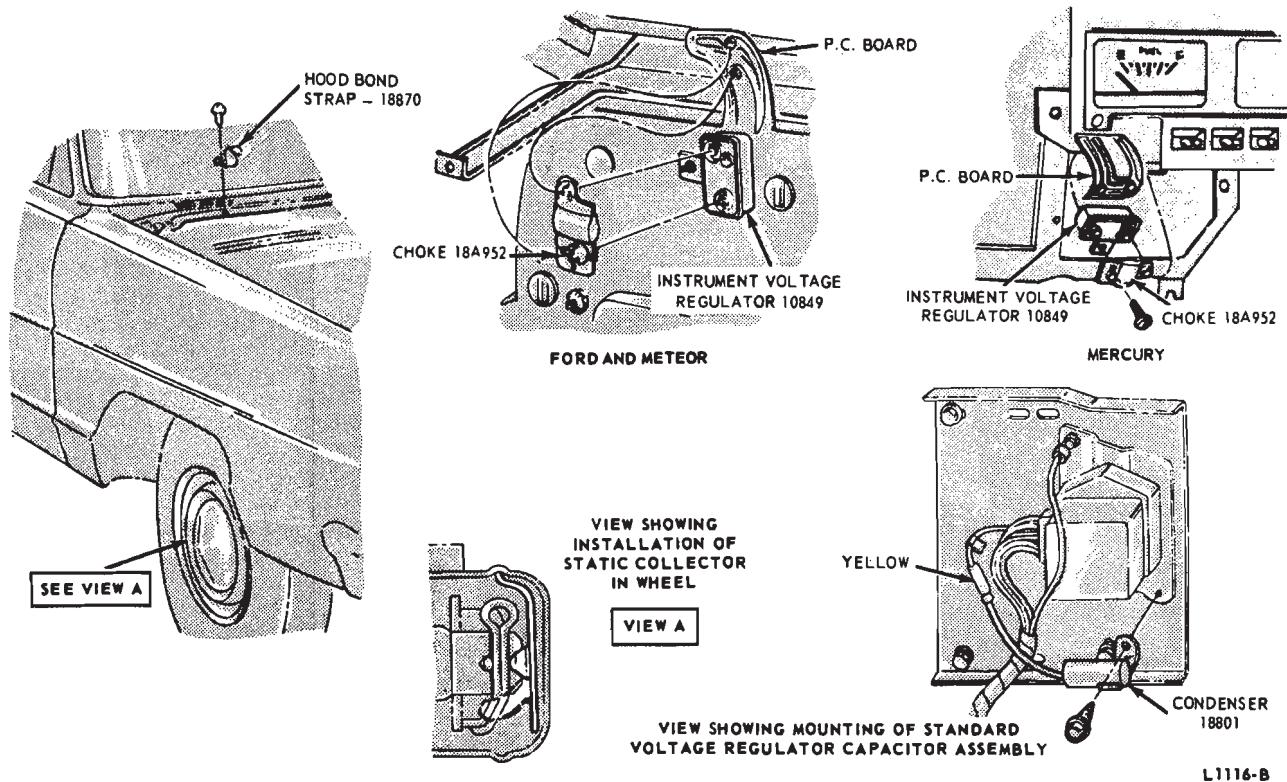


FIG. 10—Ford, Mercury and Meteor Radio Suppression Equipment Installation

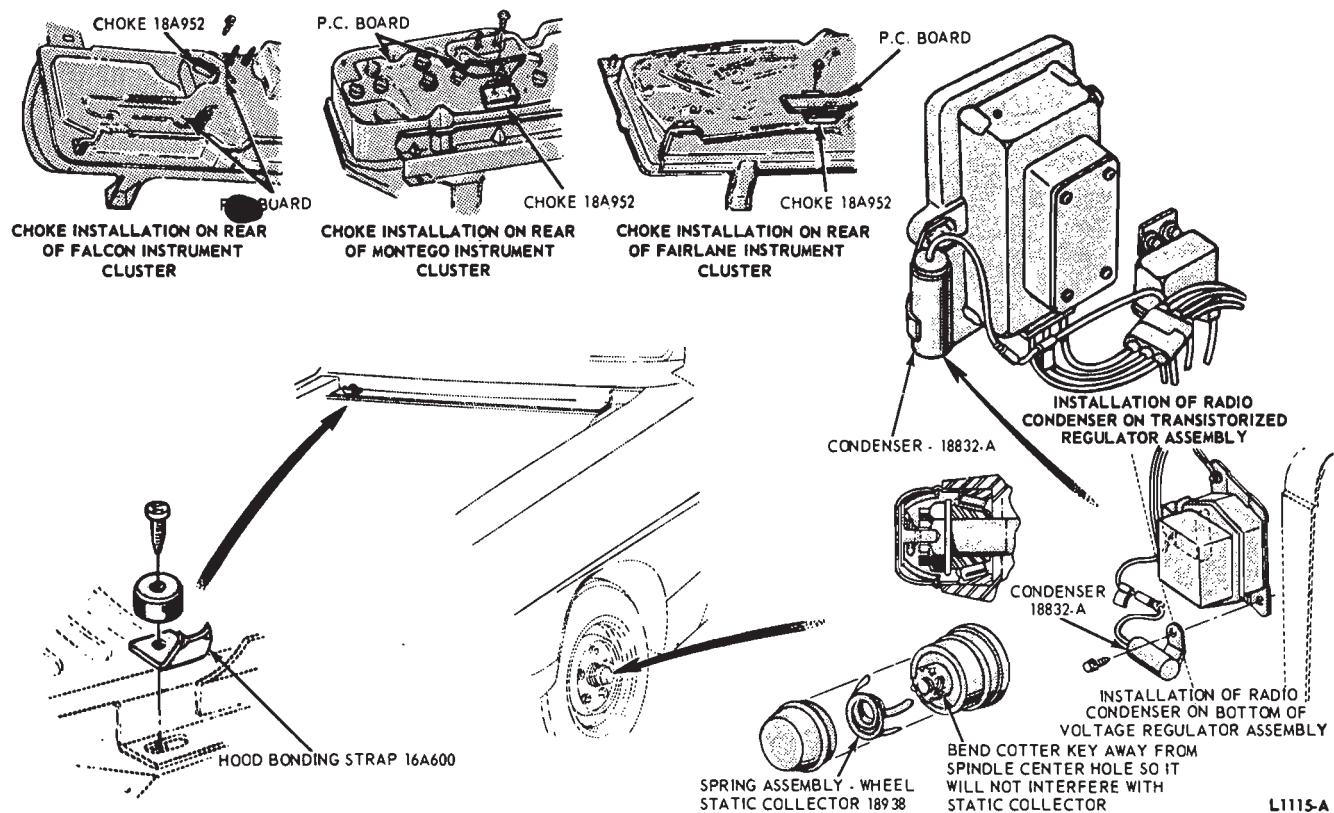


FIG. 11—Falcon, Fairlane and Montego Radio Suppression Equipment Installation

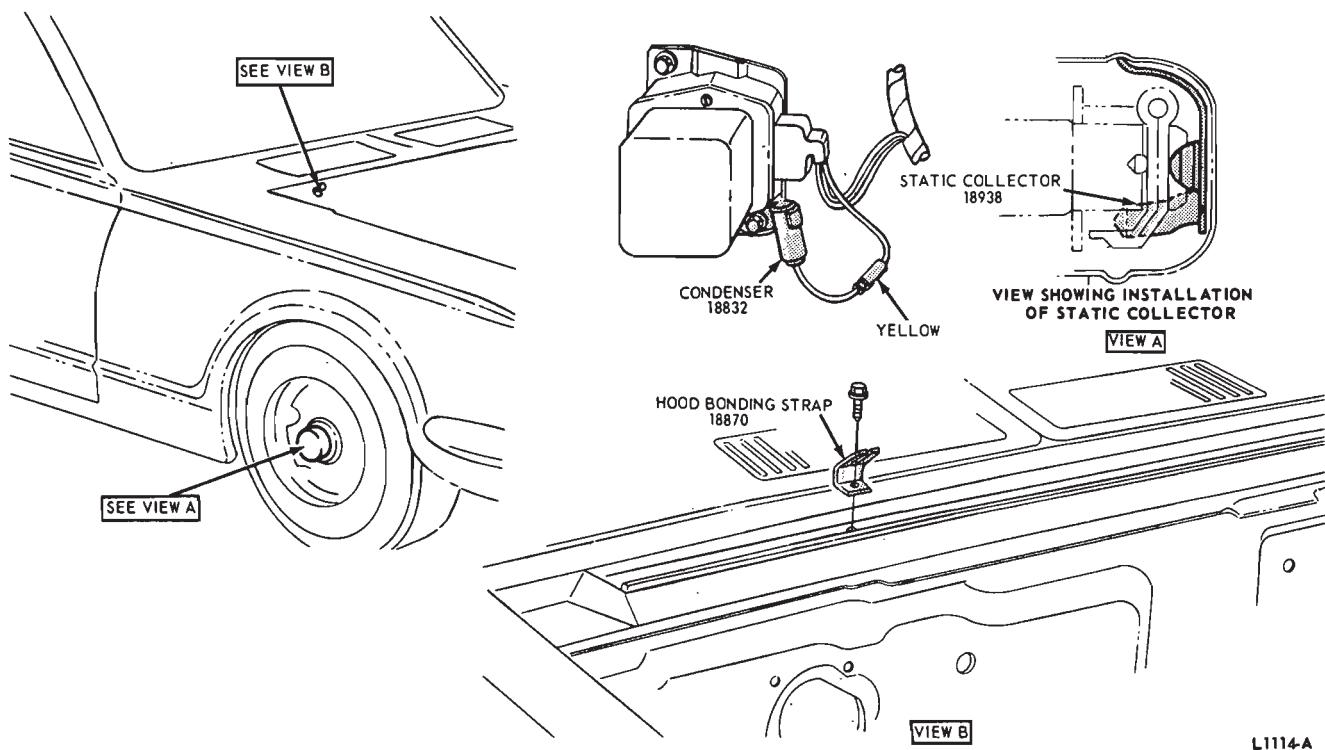


FIG. 12—Mustang and Cougar Radio Suppression Equipment Installation

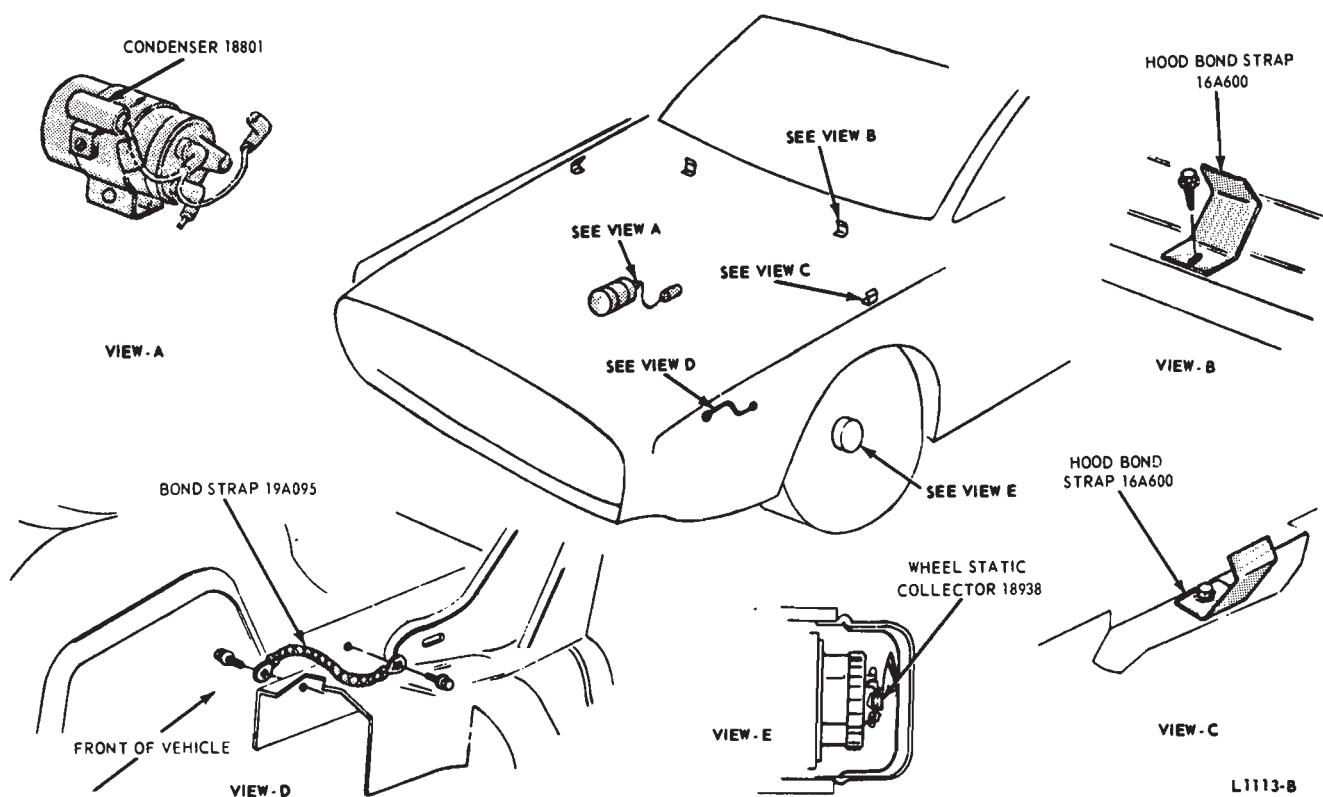


FIG. 13—Thunderbird Radio Suppression Equipment Installation

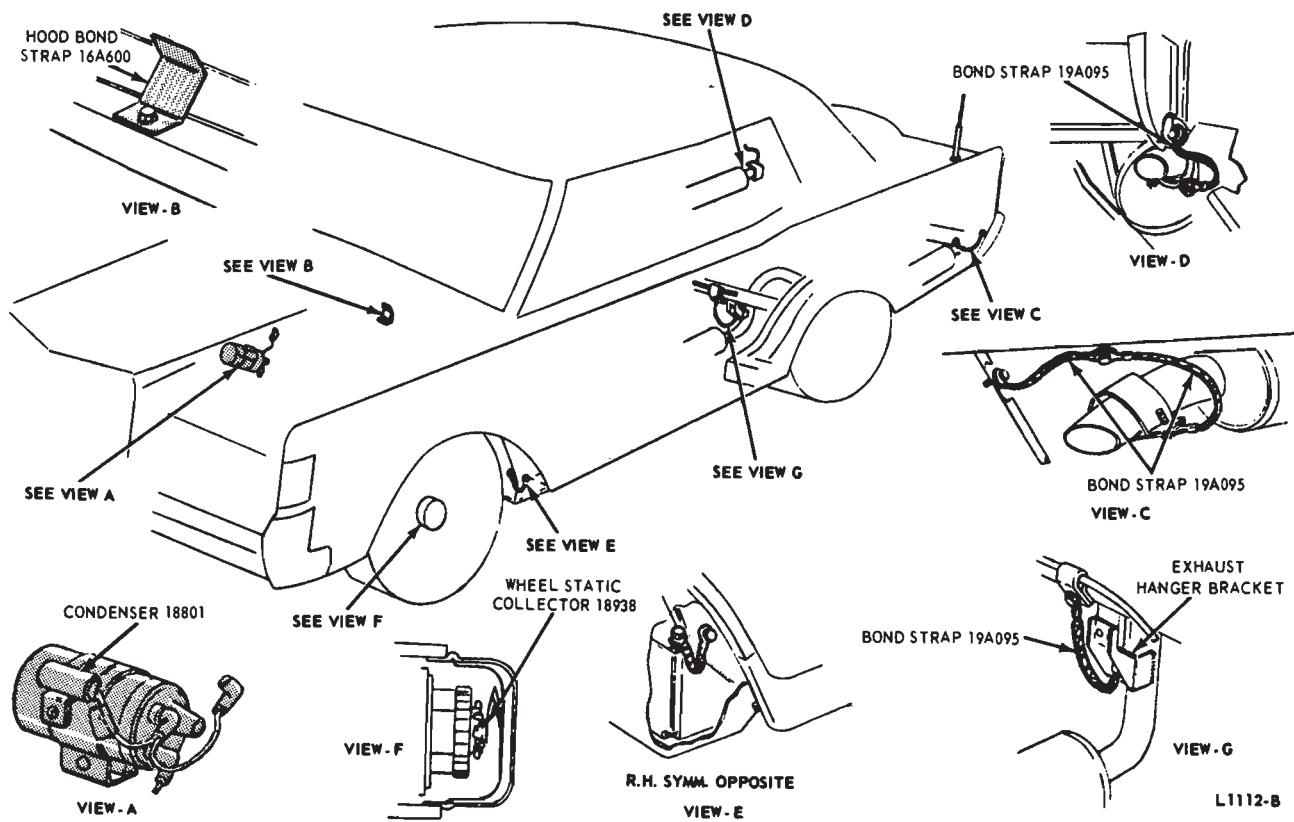
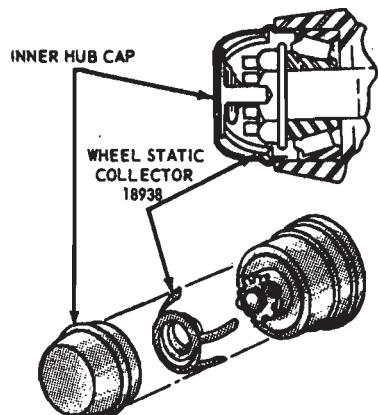


FIG. 14—Continental Mark III Radio Suppression Equipment Installation



L1111-B

**FIG. 15—Lincoln Continental
Radio Suppression Equipment
Installation**

5 SPECIFICATIONS

RADIO FUSES

The locations of the radio fuses in the various vehicle fuse panels are shown in Part 36-03.

The Ford, Meteor and Mercury use a 20-ampere fuse. The Mercury uses

a 20-ampere fuse for the power antenna.

The Lincoln Continental uses a 7.5 ampere radio fuse and a 20-ampere power antenna fuse.

The Thunderbird and Continental Mark III use a 7.5-ampere fuse for

the radio, a 10-ampere fuse for the power antenna and a 15-ampere fuse for the stereo tape radio.

The Cougar, Mustang, Falcon, Maverick, Montego and Fairlane use a 20-ampere radio fuse.

PART 35-03 Antennas

COMPONENT INDEX Applies to Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
ELECTRIC ANTENNA REPLACEMENT											03-04		03-03
MANUAL ANTENNA REPLACEMENT	03-02	03-02	03-02	03-02	03-03	03-03	03-03	03-03	03-03	03-02			
WINDSHIELD ANTENNA LEAD-IN CABLE REPLACEMENT												03-03	

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 DESCRIPTION

WINDSHIELD RADIO ANTENNA—THUNDERBIRD

The Thunderbird radio antenna consists of two small copper wires embedded between the glass laminations of the windshield. The antenna resembles a T in appearance. Both

wires start near the center lower edge of the windshield, then turn outward and lie approximately 2-1/2 inches below the upper glass edge (Fig. 1). The two wires are permanently attached to a thin metal plate at the bottom center of the glass. A pigtail, approximately 7 inches long, is also

permanently attached to the metal plate. The opposite end of the pigtail is routed into the cowl air intake plenum chamber where it is connected to the radio lead-in cable connector in the upper rear portion of the plenum wall. The radio lead-in cable connector is attached to the plenum wall

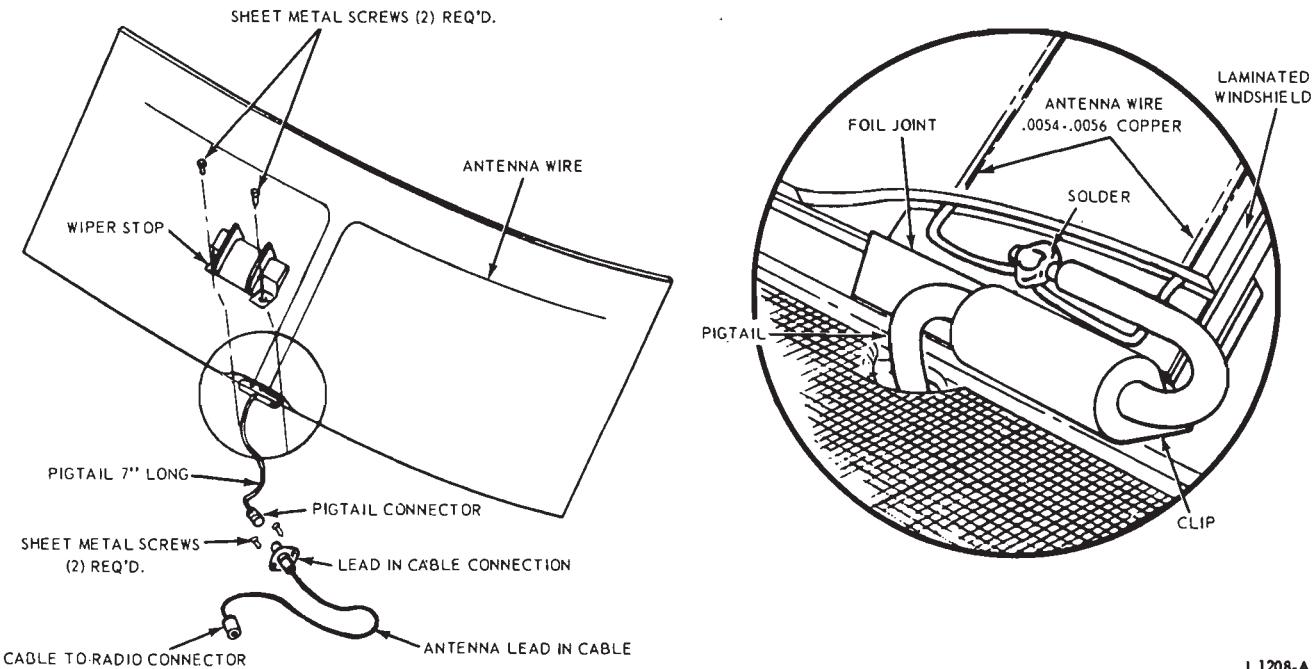
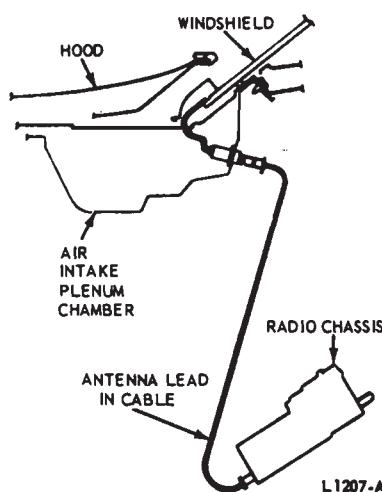


FIG. 1—Windshield Radio Antenna—Thunderbird



**FIG. 2—Windshield Radio
Antenna Cable
Routing—Thunderbird**

with two sheet metal screws. The screw heads are inside the plenum chamber and are accessible when the plenum screen is removed. The opposite end of the lead-in cable is plugged into the receptacle at the rear of the radio (Fig. 2).

2 REMOVAL AND INSTALLATION

FRONT ANTENNA—FORD, MERCURY AND METEOR

REMOVAL

1. Remove the snap-on cap from the antenna.
2. Disconnect the antenna lead at the radio and pull the grommet from the dash.
3. Remove the four screws retaining the antenna to the fender. Tie a piece of twine to the antenna lead-in cable for use during antenna installation. Remove the antenna.
4. Disconnect the twine from the lead-in cable.

INSTALLATION

1. Route the antenna lead through the gasket. Then, connect the twine to the lead-in cable and pull the cable end into the passenger compartment. Untie the twine.
2. Position the antenna and gasket to the fender and install the four retaining screws.
3. Install the snap-on cap.
4. Replace the grommet and connect the antenna lead to the radio.
5. Check the radio for proper operation.

ANTENNA SWITCH—MERCURY

REMOVAL

1. Remove the two retaining screws on the right and left instrument panel ends. Remove the ends.
2. Remove the ten screws retaining the instrument panel pad to the instrument panel, and remove the pad (Group 47).
3. Disconnect and remove the speaker.
4. Disconnect the three vacuum hoses from the vacuum door lock switch and disconnect the antenna switch lead wires.
5. Remove the indicator bulbs from the convenience housing and remove the housing.
6. Press in on the retainers and remove the switch from the housing.

INSTALLATION

1. Position the switch to the retainers and press it into the housing to lock the retainers.
2. Connect the door lock vacuum hoses and antenna lead wires.
3. Replace the indicator bulbs, replace the convenience housing, and connect the lead wires.
4. Connect the speaker leads and install the instrument panel pad (Group 47).

5. Install the instrument panel ends and check the antenna for correct operation.

RADIO ANTENNA—MUSTANG AND COUGAR

REMOVAL

1. Remove the glove compartment retaining cable screw and let the compartment liner hang down.
2. Disconnect the antenna connector at the right side of the radio (Fig. 3).
3. Remove the snap-on cap and four screws retaining the antenna to the fender.
4. Remove the antenna locating clips in the hinge pillar area. Tie a piece of twine to the antenna lead-in cable for use as a pull-line during antenna installation.
5. Pull out the grommet and remove the antenna assembly.

INSTALLATION

1. Mark the location of the locating clips on the new antenna lead-in wire and transfer the clips and twine.
2. Insert the antenna lead-in cable to the fender and route the wire through the hinge pillar area to the radio. Remove the twine (Fig. 3).
3. Install the antenna-to-fender re-

taining screws and install the cap.

4. Push the grommet in place, fasten the locating clips, and connect the antenna wire to the radio (Fig. 3).

5. Position the glove compartment liner to the instrument panel and connect the retaining cable.

ANTENNA—FALCON, FAIRLANE AND MONTEGO

1. Disconnect the antenna lead from the side of the radio receiver (at the back of the AM-FM radio). Tie a string to the end of the antenna lead.

2. Remove the antenna cap, four screws, and remove the antenna assembly.

3. Tie the string to the new antenna lead.

4. Position the antenna assembly in the opening, put the spacer in position on the antenna and install the antenna.

5. Pull the antenna lead through the opening and route the lead under the glove box and connect the lead to the radio.

WINDSHIELD ANTENNA LEAD-IN CABLE . REPLACEMENT—THUNDERBIRD

REMOVAL

1. Remove the cowl intake plenum chamber screen.

2. Remove the two sheet metal screws securing the lead-in connector to the plenum wall (Fig. 1).

3. Disconnect the opposite end from the radio socket.

4. Tie a 2-3 foot cord to the end removed from the radio.

5. Pull the cable out from the plenum side and untie the cord.

INSTALLATION

1. Tie a 2-3 foot cord to the radio lead-in cable to assist in pulling and routing the cable.

2. Insert the cord in the cowl air intake plenum chamber opening (Fig. 2).

3. Route the cord to the rear of the radio and pull the lead-in cable into position.

4. Plug the radio connector into the antenna receptacle on the back of the radio.

5. Position the lead-in cable connector in the plenum wall and insert the two mounting screws (Fig. 1).

6. Plug the windshield antenna pigtail connector into the socket of the lead-in cable connector.

7. Install the cowl intake plenum chamber screen.

ELECTRIC ANTENNA SWITCH—THUNDERBIRD AND CONTINENTAL MARK III

REMOVAL

1. Remove two screws attaching the map light to the instrument panel. Lower the map light and disconnect the wire.

2. Remove the knob from the antenna switch (Fig. 4).

3. Remove two nuts attaching the switch to the map light and separate the switch from the light.

4. Disconnect the switch wires at the multiple connector (Fig. 4) and remove the switch.

INSTALLATION

1. Connect the switch wires at the multiple connector.

2. Position the switch to the map light and install the two attaching nuts.

3. Connect the map light wire and install the switch knob.

4. Position the map light to the instrument panel and install the two attaching screws.

5. Check the operation of the an-

tenna.

ELECTRIC ANTENNA—CONTINENTAL MARK III

REMOVAL

1. Lower the antenna and remove the luggage compartment left trim panel.

2. Disconnect the lead-in cable from the antenna.

3. Disconnect the antenna motor wires at the connectors.

4. Remove the trim nut from the antenna (Fig. 4).

5. Remove the nut from the antenna mounting stud located at the bottom of the motor (Fig. 4).

6. Loosen the antenna bracket attaching bolt and nut, and remove the antenna assembly from the vehicle.

INSTALLATION

1. Clean the underside of the rear quarter panel to assure a good ground when the antenna is installed.

2. Install the collar (Fig. 5) on the antenna assembly.

3. Position the antenna to the quarter panel, and install the gasket, stanchion, and trim nut. Tighten the nut only finger tight.

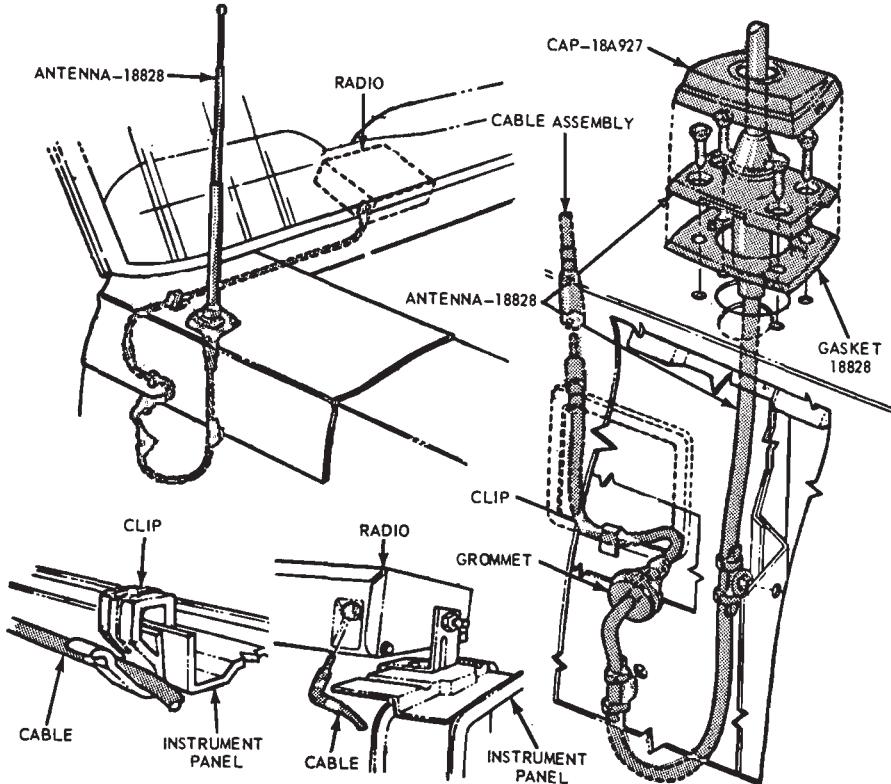


FIG. 3—Antenna Installation—Mustang and Cougar

4. Install the antenna bracket but do not tighten the nuts.
5. Tilt the antenna 1 degree in-board and 3 1/2 degrees rearward; then, tighten the bracket nuts.
6. Connect the antenna lead-in cable and motor wires.
7. Tighten the antenna trim nut and check the operation of the antenna and radio.
8. Install the luggage compartment trim panel.

ELECTRIC ANTENNA—LINCOLN CONTINENTAL

REMOVAL

1. Lower the antenna and remove

the luggage compartment left trim panel.

2. Disconnect the lead-in cable from the antenna.
3. Disconnect the antenna motor wires at the connectors.
4. Remove the trim nut from the antenna.
5. Remove the screw from the antenna mounting bracket located at the bottom of the motor.
6. Remove the antenna assembly from the vehicle.

INSTALLATION

1. Clean the underside of the rear fender to assure a good ground when the antenna is installed.

2. Install the collar on the antenna assembly.

3. Position the antenna to the fender and install the gasket, spacer and trim nut. Tighten the nut only finger tight.

4. Install the antenna bracket but do not tighten the nuts.

5. Tilt the antenna 1 degree in-board and 3 1/2 degrees rearward; then, tighten the bracket nuts.

6. Connect the antenna lead-in cable and motor wires.

7. Tighten the antenna trim nut and check the operation of the antenna and radio.

8. Install the luggage compartment trim panel.

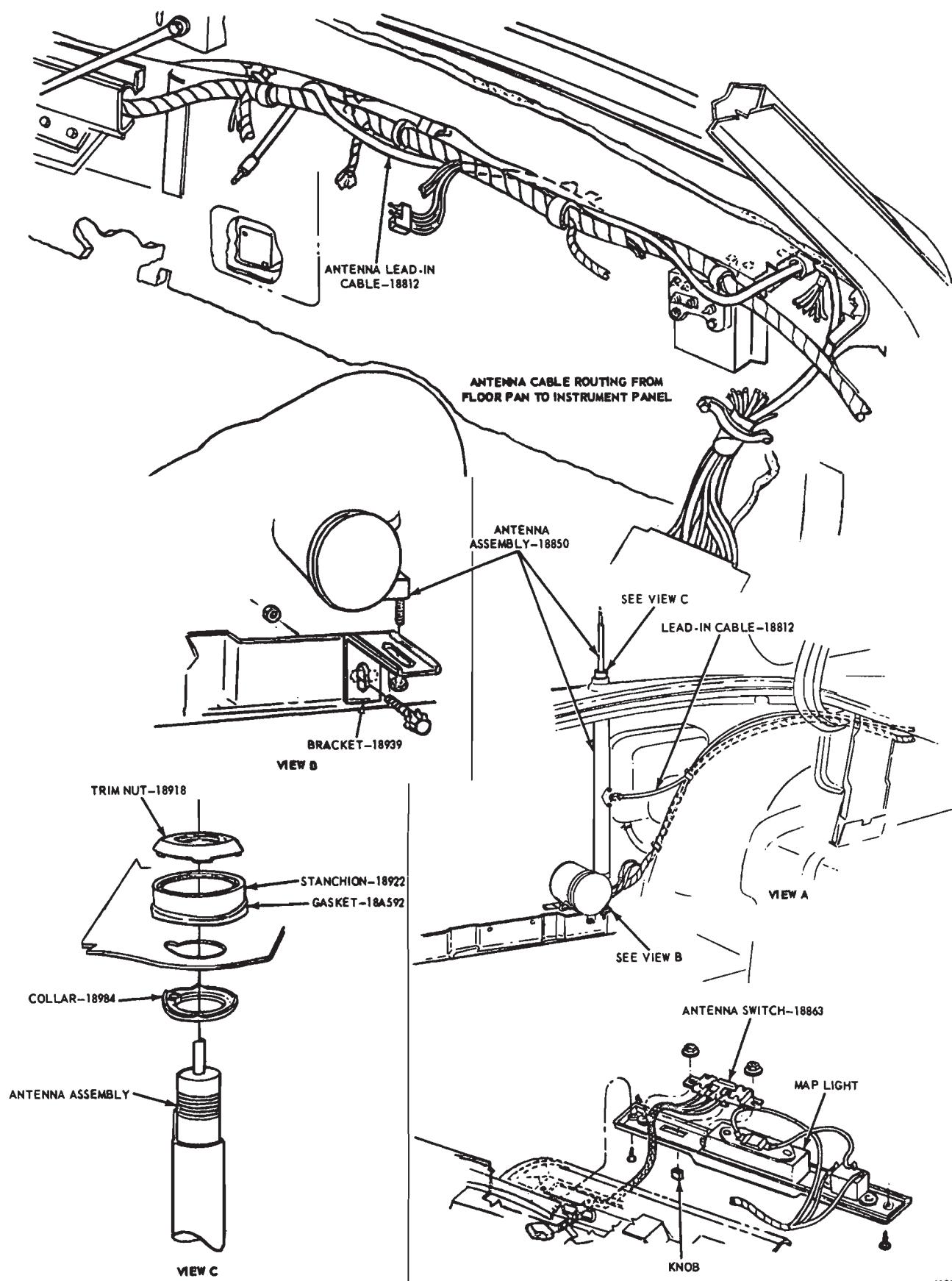


FIG. 4—Electric Antenna Installation

K2365-A

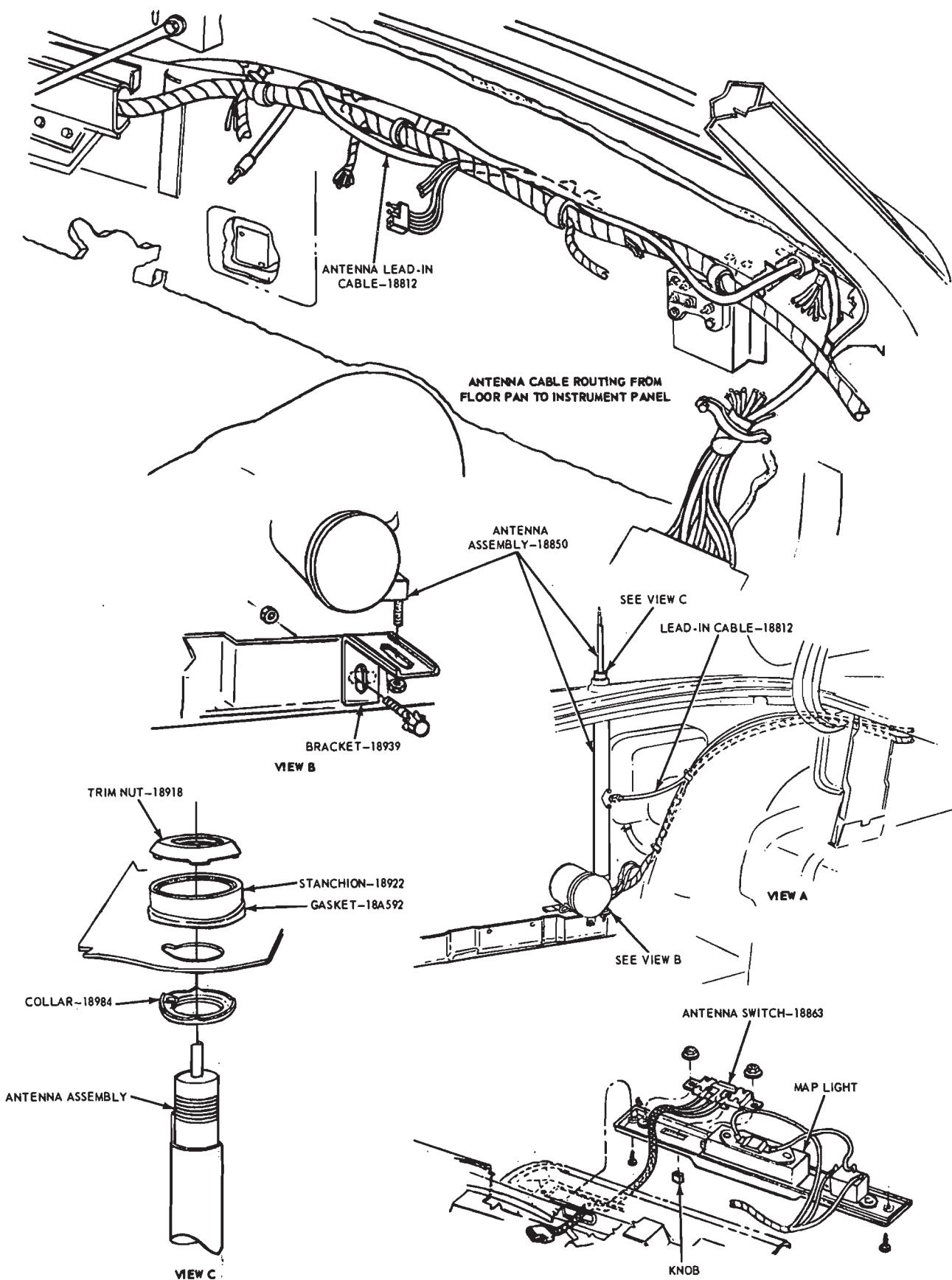


FIG. 4—Electric Antenna Installation—Thunderbird and Continental Mark III

K2365-A

PART 35-04 Speakers

COMPONENT INDEX Applies to Models As Indicated	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
	04-01	04-01	04-01	04-01				04-02	04-01	04-03	04-03	04-03
DOOR SPEAKER REPLACEMENT												
FRONT SPEAKER REPLACEMENT	04-01	04-01	04-01	04-01	04-01	04-01		04-01	04-01		04-02	04-02
REAR SPEAKER REPLACEMENT					04-02	04-02		04-02			04-02	04-02

A page number indicates that the item is for the vehicle(s) listed at the head of the column.
N/A indicates that the item is not applicable to the vehicle(s) listed.

1 REMOVAL AND INSTALLATION

FRONT SPEAKER—FORD AND METEOR

- Remove the instrument panel pad (Group 47).
- Remove the speaker retaining nuts, disconnect the multiple connector, and remove the speaker (Fig. 1, Part 35-02).
- Connect the multiple connector and install the speaker to the instrument panel pad.
- Install the instrument panel pad.

DOOR SPEAKER—FORD, MERCURY AND METEOR

- Remove the door trim panel (Group 47).
- Remove the six screws retaining the speaker to the door. Disconnect and remove the speaker.
- Connect the speaker multiple connector and install the speaker.
- Install the door trim panel.

FRONT SPEAKER—MERCURY

- Remove the instrument panel pad (Group 47).
- Disconnect and remove the speaker.
- Install the radio to the instrument panel pad and connect the multiple connector.
- Install the instrument panel pad.

FRONT SPEAKER—MUSTANG AND COUGAR

- Remove the complete instrument panel pad (Group 47).
- Remove the four speaker retain-

ing nuts, disconnect, and remove the speaker.

- Install the speaker.
- Replace the instrument panel pad (Group 47).

DOOR SPEAKER—MUSTANG AND COUGAR

- Remove the speaker grille retaining screws.
- Remove the four screws retaining the speaker to the door.
- Disconnect the lead and remove the speaker.
- Connect the speaker lead and fasten the speaker to the door.
- Replace the speaker grille with the four retaining screws.

FRONT SPEAKER—FAIRLANE, FALCON, AND MONTEGO WITHOUT A/C

- Disconnect the radio speaker wires under the instrument panel.
- Remove two speaker-retaining nuts and remove the speaker from the vehicle.
- Position the speaker to the underside of the instrument-panel pad and install the retaining nuts.
- Connect the speaker wires.

FRONT SPEAKER—FAIRLANE WITH A/C

REMOVAL

- Remove the liner from the glove compartment.
- Working through the glove compartment opening, remove one nut re-

taining the instrument-panel pad to the top of the instrument panel on the right side.

- Remove one nut retaining the instrument-panel pad to the top of the instrument panel on the left side. This nut is located on top of the panel approximately midway between the second and third instrument pods.

- Remove seven screws attaching the lower edge of the pad to the instrument panel.

- Remove one screw from the top edge of the first and third instrument pods and lift the instrument-panel pad upward.

- Disconnect the clock and speaker wires and remove the instrument-panel pad from the vehicle.

- Remove two nuts retaining the radio speaker to the instrument-panel pad and remove the speaker.

INSTALLATION

- Position the speaker to the instrument-panel pad and install the two retaining nuts.

- Position the instrument-panel pad on the instrument panel and connect the radio speaker and clock wires.

- Position the pad in place and install the seven attaching screws along the lower edge of the pad.

- Install the two screws in the top edge of the first and third instrument pods.

- Install the two nuts retaining the top of the instrument-panel pad to the instrument panel.

- Install the liner in the glove compartment.

FRONT SPEAKER—FALCON WITH A/C

REMOVAL

1. Remove the liner from the glove compartment.
2. Working through the glove compartment opening, remove one nut retaining the instrument panel pad to the top of the instrument panel on the right side.
3. Remove one nut retaining the instrument-panel pad to the top of the instrument panel on the left side. This nut is located on the top underside of the panel behind the cluster.
4. Remove seven screws attaching the lower edge of the pad to the instrument panel.
5. Remove three screws attaching the pad to the instrument panel above the instrument cluster.
6. Disconnect the speaker wires and remove the pad from the instrument panel.
7. Remove two nuts retaining the speaker to the instrument panel pad and remove the speaker.

INSTALLATION

1. Position the speaker to the instrument-panel pad and install the two retaining nuts.
2. Connect the speaker wires and position the pad to the instrument panel.
3. Install the three pad attaching screws over the instrument cluster.
4. Install the seven pad attaching screws along the lower edge of the pad.
5. Install the two nuts retaining the top of the pad to the instrument panel.
6. Install the glove compartment liner.

FRONT SPEAKER—MONTEGO WITH A/C

REMOVAL

1. Remove the liner from the glove compartment.
2. Working through the glove compartment opening, remove one nut retaining the instrument-panel pad to the top of the instrument panel on the right side.
3. Remove one nut retaining the instrument-panel pad to the top of the instrument panel on the left side. This nut is located on the top underside of

the panel behind the cluster.

4. Remove five screws attaching the lower edge of the pad to the instrument panel (Group 47).
5. Remove two screws attaching the pad to the instrument panel above the instrument cluster.
6. Disconnect the speaker wires and remove the pad from the instrument panel.
7. Remove two nuts retaining the speaker to the instrument-panel pad and remove the speaker.

INSTALLATION

1. Position the speaker to the instrument-panel pad and install the two retaining nuts.
2. Connect the speaker wires and position the pad to the instrument panel.
3. Install the two pad attaching screws over the instrument cluster.
4. Install the five pad attaching screws along the lower edge of the pad.
5. Install the two nuts retaining the top of the pad to the instrument panel.
6. Install the glove compartment liner.

DOOR SPEAKERS

1. Remove the trim panel from the door (Group 47).
2. Remove the speaker attaching screws and pull the speaker from the door. Then, disconnect the speaker wires at the multiple connector and remove the speaker.
3. Connect the speaker wires at the connector and position the speaker to the door.
4. Install the speaker attaching screws and the door trim panel.

SIDE COWL SPEAKERS

1. Loosen the door opening scuff plate attaching screws.
2. Remove one side cowl trim panel retaining screw and remove the trim panel.
3. Remove four speaker attaching screws and pull the speaker from the opening. Disconnect the speaker wires and remove the speaker.
4. Connect the speaker wires and position the speaker to the side cowl panel. Then, install the four attaching screws.
5. Install the side cowl trim panel and tighten the scuff plate attaching screws.

REAR SPEAKER—FALCON, FAIRLANE AND MONTEGO

The rear seat speaker is accessible for replacement from the luggage compartment. On the station wagon the speaker is mounted on the left rear trim panel. Remove the trim panel to replace the speaker.

FRONT SPEAKER—THUNDERBIRD AND CONTINENTAL MARK III

REMOVAL

1. Start at the left front edge of the instrument panel upper finish panel and carefully pry it upward with a screwdriver. Remove the upper finish panel.
2. Remove the two speaker attaching screws (Figs. 7, 8 and 9, Part 35-02).
3. Lift the speaker upward and disconnect the wiring at the connector.
4. Remove the speaker.

INSTALLATION

1. Connect the speaker wiring to the connector (Figs. 7, 8 and 9, Part 35-02).
2. Position the speaker and secure it with the two attaching screws.
3. Position the rear edge of the upper finish panel, then snap the front edge of panel in place.

REAR SPEAKERS—THUNDERBIRD AND CONTINENTAL MARK III

REMOVAL

1. Remove the rear seat cushion and rear seat back.
2. Remove the right and left rear quarter arm rests.
3. Remove the package tray center trim panel.
4. Remove the two attaching screws from each speaker.
5. Lift speakers upward and disconnect the wiring at the connectors. Remove the speakers.

INSTALLATION

1. Connect each speaker wiring to the connectors.
2. Secure each speaker to the panel with two attaching screws.
3. Position the package tray center trim panel.
4. Install the package tray trim mouldings.
5. Install the quarter arm rests, rear seat back and the cushion.

DOOR

**SPEAKERS—STEREO—THUNDERBIRD,
LINCOLN CONTINENTAL AND
CONTINENTAL MARK III**

REMOVAL

1. Remove the panel from the door (Group 47).

2. Remove the screws that attach the speaker to the door panel.
3. Lift the speaker away from the panel and disconnect the wiring at the connector.

INSTALLATION

1. Connect the speaker wiring to its connector.
2. Position the speaker to the door panel and install the attaching screws.
3. Install the door trim panel (Group 47).

PART 35-05 Ash Receptacles and Cigar Lighters

COMPONENT INDEX Applies Only to Models Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
ASH RECEPTACLE REPLACEMENT	05-01												
CIGAR LIGHTER REPLACEMENT		05-01	05-01		05-01	05-01	05-01	05-01	05-01	05-01	05-01	05-01	05-01

A page number indicates that the item is for the vehicle(s) listed at the head of the column.

1 ASH RECEPTACLE REPLACEMENT

Ash receptacle shield assemblies that retain the ash receptacles may be

easily removed by first removing the ash receptacle. The shield assembly

may then be removed by removing the shield assembly mounting screws.

2 CIGAR LIGHTER REPLACEMENT

FORD

1. Disconnect the battery ground cable.
2. Remove the instrument panel pad (Group 47).
3. Remove the lighter element, disconnect the push-on connector at the lighter, remove the retainer and socket.

MERCURY

1. Disconnect the battery ground cable.
2. Remove the instrument panel right and left end finish panels.
3. Remove the instrument panel pad retaining screws, disconnect the radio speaker, and remove the pad.
4. Remove the wiper knob and the lighter element.
5. Remove the instrument panel left finish panel assembly.
6. Remove the socket retainer and socket from the lighter bracket.

COUGAR AND MUSTANG

1. Disconnect the battery ground cable.
2. Remove two screws at the rear of the console, lift up the console top, disconnect the lighter and remove the console top.
3. Remove the element, remove the retainer and the socket.

MAVERICK

1. Disconnect the battery ground cable.
2. Remove the ash receptacle assembly, and disconnect the lighter wire.
3. Remove the element, remove the retainer and the socket.

FALCON, FAIRLANE AND MONTEGO

1. Disconnect the battery ground cable, and remove the lighter element.

2. From under the instrument panel, disconnect the lighter wire, remove the socket retainer and the socket.

THUNDERBIRD AND CONTINENTAL MARK III

1. Disconnect the battery ground cable.
2. Open the ash receptacle and remove the lighter element.
3. Disconnect the push-on connector, remove the socket retainer, and remove the socket.

LINCOLN CONTINENTAL

1. Disconnect the battery ground cable.
2. Remove the glove box.
3. Open the ash receptacle.
4. Through the glove box opening, disconnect the lighter wire, remove the socket retainer, and remove the socket.

PART 35-06 Mirrors, Inside, Outside and Remote Control

COMPONENT INDEX Applies to All Models	All Models	COMPONENT INDEX Applies to All Models	All Models
BONDED REAR VIEW MIRROR Removal and Installation OUTSIDE REAR VIEW MIRROR Removal and Installation	06-02 06-01	REMOTE CONTROL REAR VIEW MIRROR Removal and Installation	06-01

1 OUTSIDE REAR VIEW MIRROR

The outside rear view mirror is mounted on the left front door. To

remove the mirror, remove the two attaching screws and lift off the mir-

ror and gasket.

2 REMOTE CONTROL REAR VIEW MIRROR

REMOVAL

1. Remove the bezel nut from the remote control actuator.
2. Attach a pull cord to the remote control actuator.
3. Remove two mirror attaching screws and remove the mirror and control cables from the door. When the cables are out of the door, disconnect the pull cord from the remote

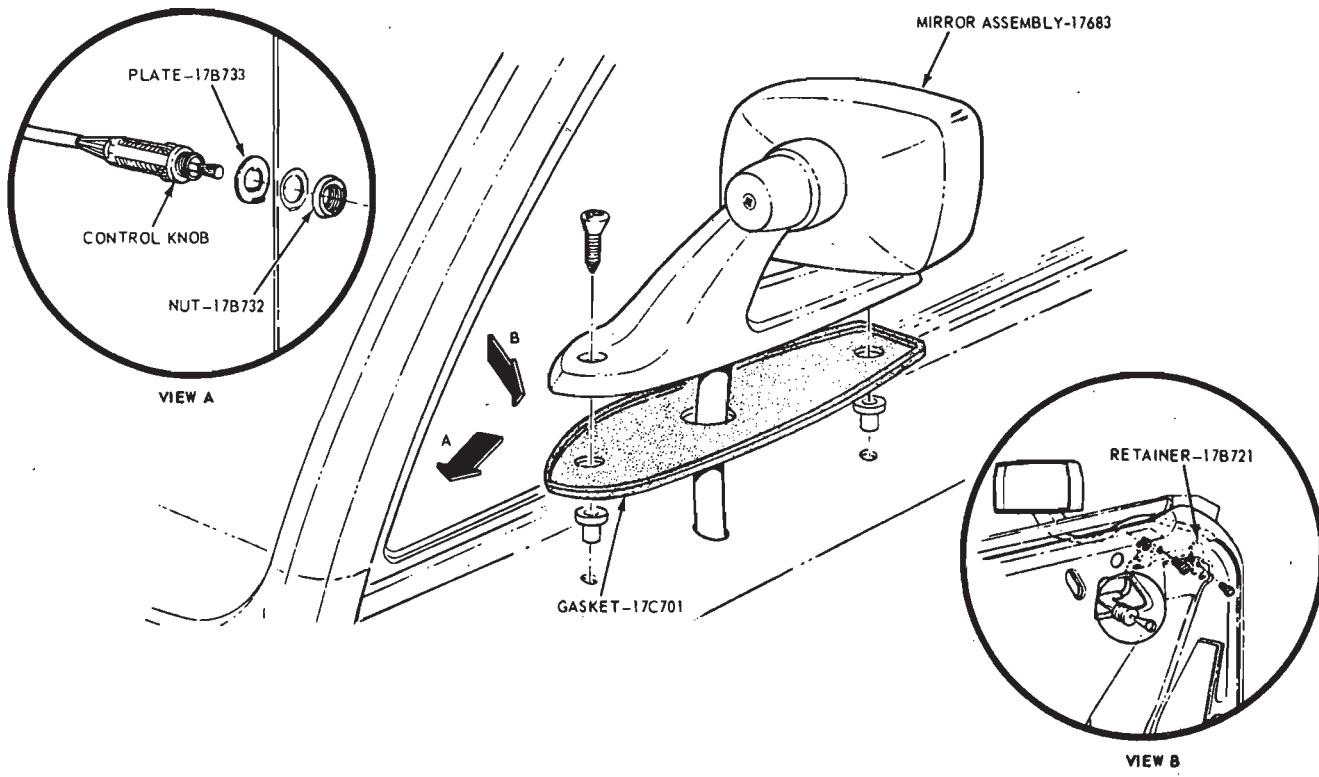
control actuator. Do not allow the pull core end to be pulled into the door.

INSTALLATION

1. Attach the pull cord to the remote control actuator.
2. Position the mirror to the door using the pull cord to route the cables

and actuator through the door.

3. Install the two mirror attaching screws (Fig. 1).
4. Pull the remote control actuator through the hole in the door trim panel and install the bezel nut on the actuator.
5. Remove the pull cord from the actuator and check the operation of the mirror.



L 1246-A

FIG. 1—Remote Control Rear View Mirror

3 BONDED REAR VIEW MIRROR

REMOVAL

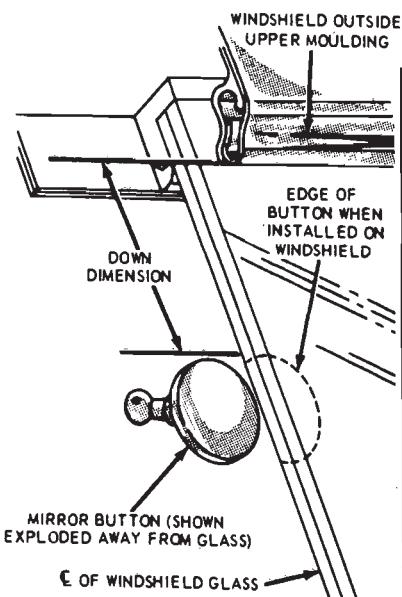
Remove the mirror mounting bracket from the windshield. If the bracket vinyl pad remains on the windshield, apply low heat from an electric heat gun until the vinyl softens. Then, peel the vinyl off the windshield.

INSTALLATION

- Locate and mark the mirror mounting bracket location on the outside surface of the windshield with a wax pencil (Fig. 2).

- Thoroughly clean the inside of the windshield with mild abrasive cleaning powder and a clean cloth saturated in alcohol. Then, use a paper towel and remove all cleaner from the windshield.

- Roughen the bonding surface of the mounting bracket with fine grit sandpaper. Then, wipe the surface clean with a paper towel soaked in alcohol.



VEHICLE	MODELS	DOWN DIMENSION (INCHES)
FORD	54-62-71	5-11/32
METEOR	53-57-63	
MERCURY	65-76	5-1/32
FAIRLANE	54-62-71	5-1/8
FALCON	63-65	
MONTEGO	66-76	3-7/8
THUNDERBIRD	ALL	5-1/2
LINCOLN CONTINENTAL	ALL	6-15/32
CONTINENTAL MARK III	ALL	5-1/2
MUSTANG COUGAR	ALL	3-5/8

N1736-B

FIG. 2—Bonded Rear View Mirror Location

4. Using the applicator, apply a generous amount of Loctite Minute Bond Accelerator to the binding surface of the mounting bracket. Allow the bonding material to dry for five minutes. Do not touch the mounting surface.

5. Apply a thin film of Accelerator to the mounting surface of the windshield. Allow the bonding material to

dry for one minute.

6. Apply two drops of Loctite Minute Bond to the mounting surface of the bracket. Using a clean toothpick or wooden match, quickly spread the adhesive evenly over the mounting surface of the bracket.

7. Quickly position the mounting bracket on the windshield. The 3/8 inch circular depression in the bracket

must be toward the bottom edge. Press the bracket against the windshield for about one minute.

8. Allow the bond to set for five minutes. Then, remove any excess bonding material from the windshield with an alcohol dampened rag.

9. Attach the mirror to the mounting bracket.

PART 35-07 Windshield Wipers and Washers

COMPONENT INDEX Applies to Models As Indicated	All Models	Ford	Mercury	Meteor	Cougar	Fairlane	Falcon	Maverick	Montego	Mustang	Lincoln- Continental	Thunderbird	Continental- Mark III
ARM AND BLADE REPLACEMENT	07-01	07-01	07-01	07-01	07-02	07-01	07-02	07-02	07-01	07-02	07-01	07-01	07-01
BLADE REPLACEMENT	07-02												
CIRCUIT BREAKER TEST		07-06	07-06	07-06	07-12	07-12	07-12	07-12	07-12	07-12	07-06	07-16	07-16
CONTROL SWITCH TEST		07-05	07-05	07-05	07-11	07-11	07-11	07-11	07-11	07-11	07-05	07-16	07-16
INTERMITTENT ELECTRONIC GOVERNOR TEST		N/A	N/A	N/A	07-21	07-21	N/A	N/A	07-21	07-21	07-21	N/A	N/A
INTERMITTENT WIPER GOVERNOR Description and Operation		07-19	07-19	07-19	07-21	07-21	N/A	N/A	07-21	07-21	07-21	07-19	07-19
Removal and Installation		07-21	07-21	07-21	07-21	07-21	N/A	N/A	07-21	07-21	07-21	07-21	07-21
PARK SWITCH TEST		07-05	07-05	07-05	07-11	07-11	07-11	07-11	07-11	07-11	07-05	07-16	07-16
PIVOT SHAFT AND LINK Removal and Installation		07-09	07-09	07-09	07-14	07-14	07-14	07-13	07-14	07-14	07-10	07-17	07-17
WASHER NOZZLE ADJUSTMENT	07-21												
WASHER NOZZLE REPLACEMENT	07-21												
WASHER PUMP REPLACEMENT		07-22	07-22	07-22	07-22	07-22	07-22	07-22	07-22	07-22	07-21	07-21	07-21
WIPER MOTOR TEST		07-05	07-05	07-05	07-11	07-11	07-11	07-11	07-11	07-11	07-05	07-16	07-16
WIPER SWITCH Removal and Installation		07-10	07-10	07-10	07-15	07-14	07-14	07-13	07-14	07-15	07-11	07-17	07-17
Test		07-05	07-05	07-05	07-11	07-11	07-11	07-11	07-11	07-11	07-05	07-16	07-16
WIPER SYSTEM DESCRIPTION AND OPERATION		07-05	07-05	07-05	07-11	07-11	07-11	07-11	07-11	07-11	07-05	07-16	07-16

A page number indicates that the item is for the vehicle(s) listed at the head of the column.

N/A indicates that the item is not applicable to the vehicle(s) listed.

1 WINDSHIELD WIPER ARMS AND BLADES

REMOVAL AND INSTALLATION OF ARM AND BLADE ASSEMBLY TO PIVOT SHAFT

ALL EXCEPT FALCON, MAVERICK, COUGAR AND MUSTANG

To remove the arm and blade assembly from the pivot shaft, swing the arm and blade away from the windshield and insert a 3/32-inch pin (pop rivet or drill shank) through the pin hole as shown in Fig. 1. Swinging the assembly away from the windshield will release the spring loaded attaching clip in the arm from the pivot shaft. Inserting the pin will hold

it in released position. The arm can now be pulled off the pivot shaft. Do not pry off with a screw driver.

Leave the pin in the arm until after installation. A new service replacement arm comes with a pin already installed to hold it in released position.

When installing the assembly, be sure that the pivot shaft is in park position and that the blade assembly is positioned to the correct dimension as outlined under Arm and Blade Assembly Adjustment. Push the arm onto the pivot shaft. Lock the arm to the pivot shaft by removing the pin or pop rivet (Fig. 1).

Auxiliary Arm Driver's Side Only

The arm and blade assembly on the driver's side of the Fairlane, Montego, Continental Mark III and Lincoln Continental has a small auxiliary arm in addition to the main arm (Fig. 2).

First remove the main arm from the pivot shaft as outlined in the foregoing procedure. Unlock the auxiliary arm from the pin by sliding back the retaining clip (Fig. 2). Lift the arm from the pin.

Install the auxiliary arm on the pin and engage the retaining clip. Install the main arm as outlined in the foregoing procedure.

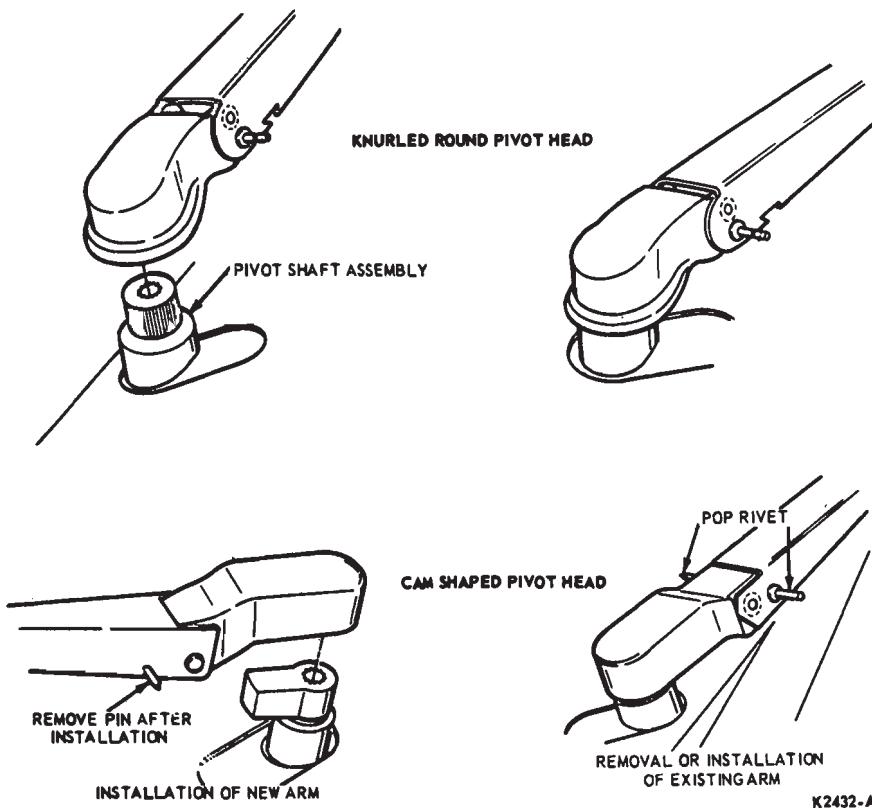


FIG. 1—Installation of Arm and Blade Assembly to Pivot Shaft

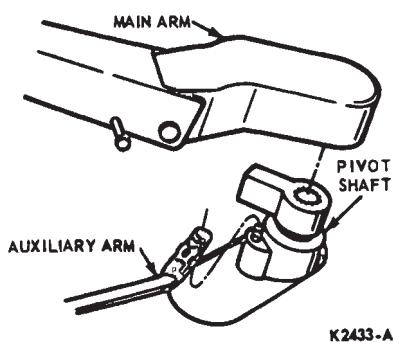


FIG. 2—Driver Side Windshield Wiper Arm and Blade Assembly

FALCON, MAVERICK, COUGAR AND MUSTANG

The windshield wiper arm installation on these models is the same as shown in Fig. 1, except that they do not have a pin and hole arrangement to hold the attaching clip in released position.

Swing the arm and blade assembly away from the windshield to release the spring loaded attaching clip in the arm from the pivot. While holding the assembly in this position, pull the arm off the pivot shaft.

To install, hold the arm and blade assembly in the swing out position

and push the arm on to the pivot shaft. The arm will lock to the pivot when it is moved back against the windshield.

When installing the arm be sure that it is adjusted to the proper dimension as outlined in the following procedure.

ARM AND BLADE ASSEMBLY ADJUSTMENT

Remove the arm and blade assemblies from the pivot shafts. Turn on the switch, allow the motor to move the pivot shafts three or four cycles, and then turn off the switch. This will place the pivot shafts in park position.

Install the arm and blade assemblies on the pivot shafts to dimension X as shown in Fig. 3. Dimension X is the distance between the centerline of the blade saddle and the edge of the glass on Fairlane, Montego, Thunderbird, Continental Mark III and Lincoln Continental. On all other car lines, dimension X is the distance between the centerline of the blade saddle and the windshield lower moulding or weatherstrip. The value of dimension X for each car line is given in Fig. 4.

After installing a Thunderbird,

Continental Mark III or Lincoln Continental wiper arm on the pivot shaft to dimension X, lift the blade up over the blade stop.

Dimension X can be attained on Ford, Meteor and Mercury wipers only by installing the wiper arm in a preload condition as follows:

Place the rubber element of the blade assembly to the moulding so that, when the arm is attached to the pivot shaft, the rubber element contacts the forward edge of the moulding between points A and B (Fig. 5). After the arm is installed, lift the blade into the trough of the reveal moulding.

REMOVAL AND INSTALLATION OF BLADE ASSEMBLY TO WIPER ARM

The wiper blades used on Ford vehicles are labeled as either a Trico or an Anco blade. Both Trico and Anco blades come in two types. With a bayonet type, the blade saddle slides over the end of the arm and is engaged by a locking stud. With a side saddle pin type, a pin on the arm indexes into the side of the blade saddle and engages a spring loaded clip in the saddle.

BAYONET TYPE

To remove a Trico blade, press down on the arm to unlatch the top stud. Depress the tab on the saddle (Fig. 6) and pull the blade from the arm.

To remove an anco blade, press inward on the tab (Fig. 7) and pull the blade from the arm.

To install a new blade assembly, slide the blade saddle over the end of the wiper arm so that the locking stud snaps into place.

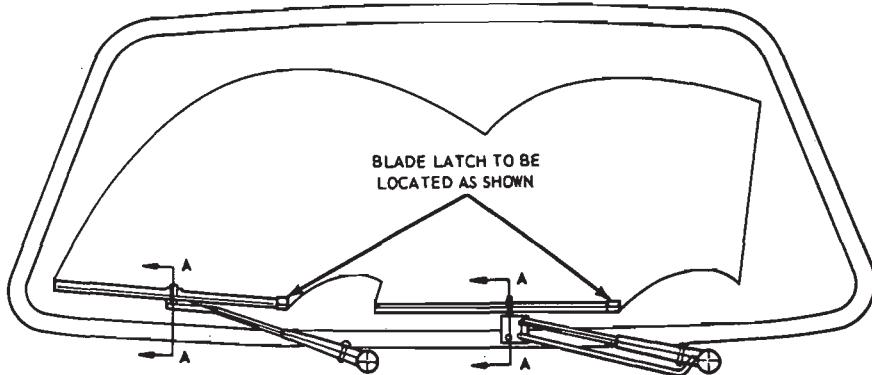
SIDE SADDLE PIN TYPE

To remove a pin type (Trico or Anco) blade, insert an appropriate tool into the spring release opening of the blade saddle, depress the spring clip and pull the blade from the arm (Fig. 8).

To install, push the blade saddle on to the pin so that the spring clip engages the pin (Fig. 8).

REMOVAL AND INSTALLATION OF RUBBER ELEMENT TO WIPER BLADE

The rubber element in all Trico blades and in Anco pin type blades can be replaced. The element in Anco



bayonet type blades, however, can not be replaced.

Squeeze the sides of the retainer to disengage and remove the rubber element (Fig. 9).

Insert the new element as shown. If the retainer is equipped with a plastic end cover, retain it and install it to the new unit.

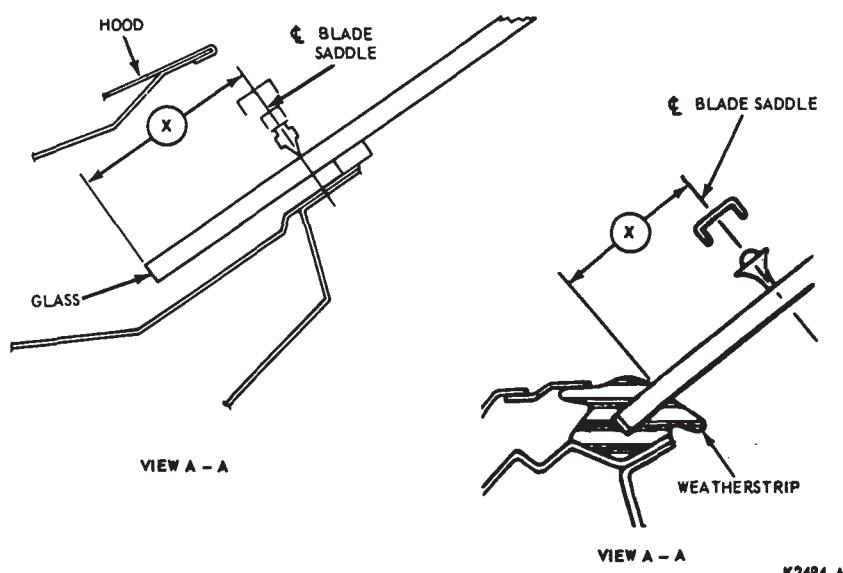
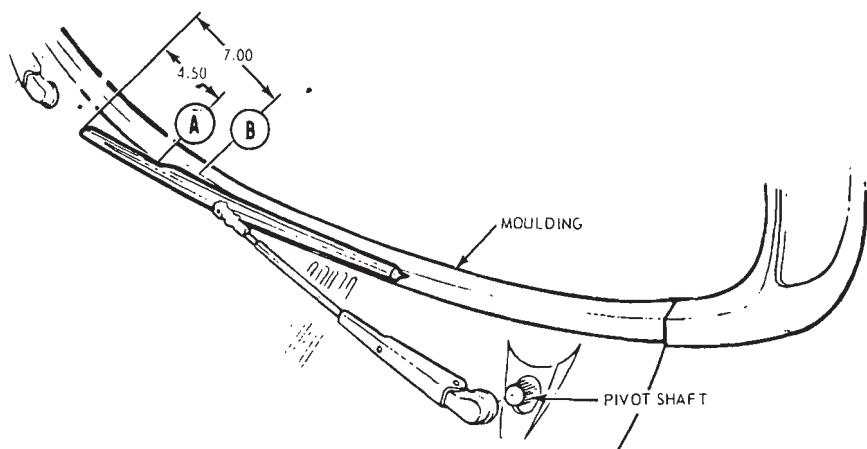


FIG. 3—Adjustment of Windshield Wiper Arm and Blade Assembly

Car Line	Dimension X (Inches)	
	Driver Side	Passenger Side
Falcon, Fairlane Montego	1 3/32 to 1 13/32	1 11/16 to 1 7/8
Maverick	1 1/2 to 2 1/2	2 to 3
Cougar, Mustang	1 to 2 1/2	1 1/2 to 2 1/2
Ford, Meteor, Mercury	-1/2 to +1/2	-1/2 to +1/2
Thunderbird, Continental Mark III	0 to 1 1/4	0 to 1 1/4
Lincoln Continental	3/16 to 1 7/16	1/4 to 1

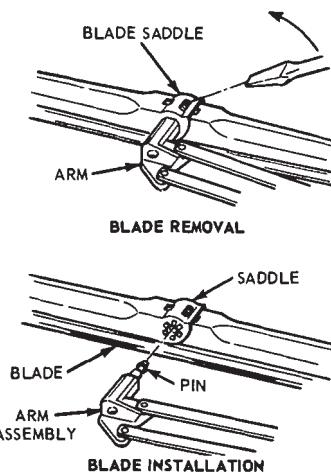
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FIG. 4—Values of Dimension X for Correct Arm and Blade Assembly Adjustment



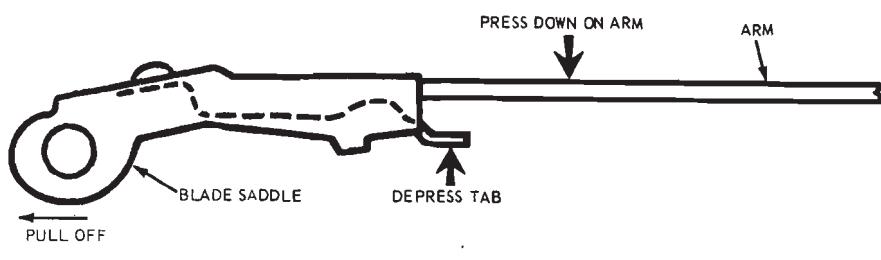
K2437-A

FIG. 5—Wiper Blade Preloaded for Proper Adjustment—Ford, Meteor and Mercury



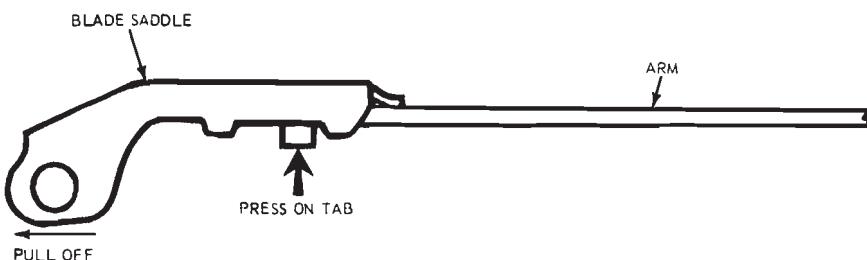
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FIG. 8—Trico or Anco Pin Type Blade Replacement—Left Side Shown, Right Side Typical



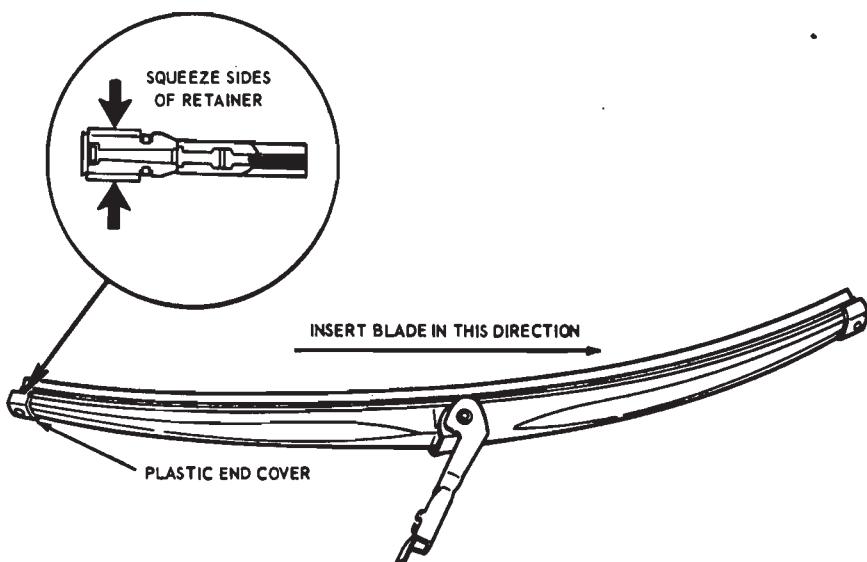
K1160-F

FIG. 6—Trico Bayonet Type Blade Removal



K1161-D

FIG. 7—Anco Bayonet Type Blade Removal



K2439-A

FIG. 9—Rubber Element Replacement

2 FORD, METEOR, MERCURY AND LINCOLN CONTINENTAL WINDSHIELD WIPER SYSTEM

DESCRIPTION AND OPERATION

The wiper motor is a two-speed, permanent magnet depressed park type with the brush end plate at one end of the housing and a gear housing at the other end. The park switch is located in the gear cover and the park mechanism is located in the output arm.

The motor is mounted on the engine side of the dash panel under the left front fender. The links from the pivot shafts are not directly connected to the motor, but connect to the drive arm and pivot plate assembly on the inner side center of the dash panel. A drive arm from the pivot plate connects to the motor output shaft.

MOTOR TEST PROCEDURES

To perform the electrical tests, it will be necessary to remove the motor from the vehicle for access to the terminals. See Motor Removal and Installation.

The motor terminals are too small to make the necessary test connec-

tions without using connector sleeves and wires between the motor terminals and the test equipment as shown in Fig. 10. The connector sleeves (available in kit No. C4AZ-14294-8) should be crimped onto both ends of the wires.

CURRENT DRAW TEST

Connect the positive (red) lead from the test equipment to the center terminal on the motor end plate, and connect the green lead from the tester to the battery positive post (Fig. 10). Connect a jumper wire from the battery negative post to the low speed terminal on the motor end plate and read the current draw. Move the jumper wire from the low speed terminal to the high speed terminal, and read the high speed current draw. In either case the current draw should not exceed 3.5 amperes. If the current draw does exceed 3.5 amperes, check the output arm and windlatch mechanism for binding or damage before replacing the motor.

PARK SWITCH TEST

Using the appropriate connector sleeves and wires, connect the park switch terminals to the motor terminals in the end plate and to the battery positive post as shown in Fig. 10. Ground the motor to the battery negative post as shown. With this hook-up, the motor output arm should move in the following cycle: rotate in normal direction; reverse direction of rotation; and stop in park position. If the output arm does not cycle properly, replace the park switch.

WINDSHIELD WIPER MANUAL CONTROL SWITCH TESTS

CONTINUITY TEST

Check the continuity between terminals of the switch as shown in Figs. 11, 12 and 13. (As an alternate procedure plug a known good switch into the wiring harness and operate). If the switch is good, check the continuity of the wires and repair or replace the wiring as necessary. If continuity

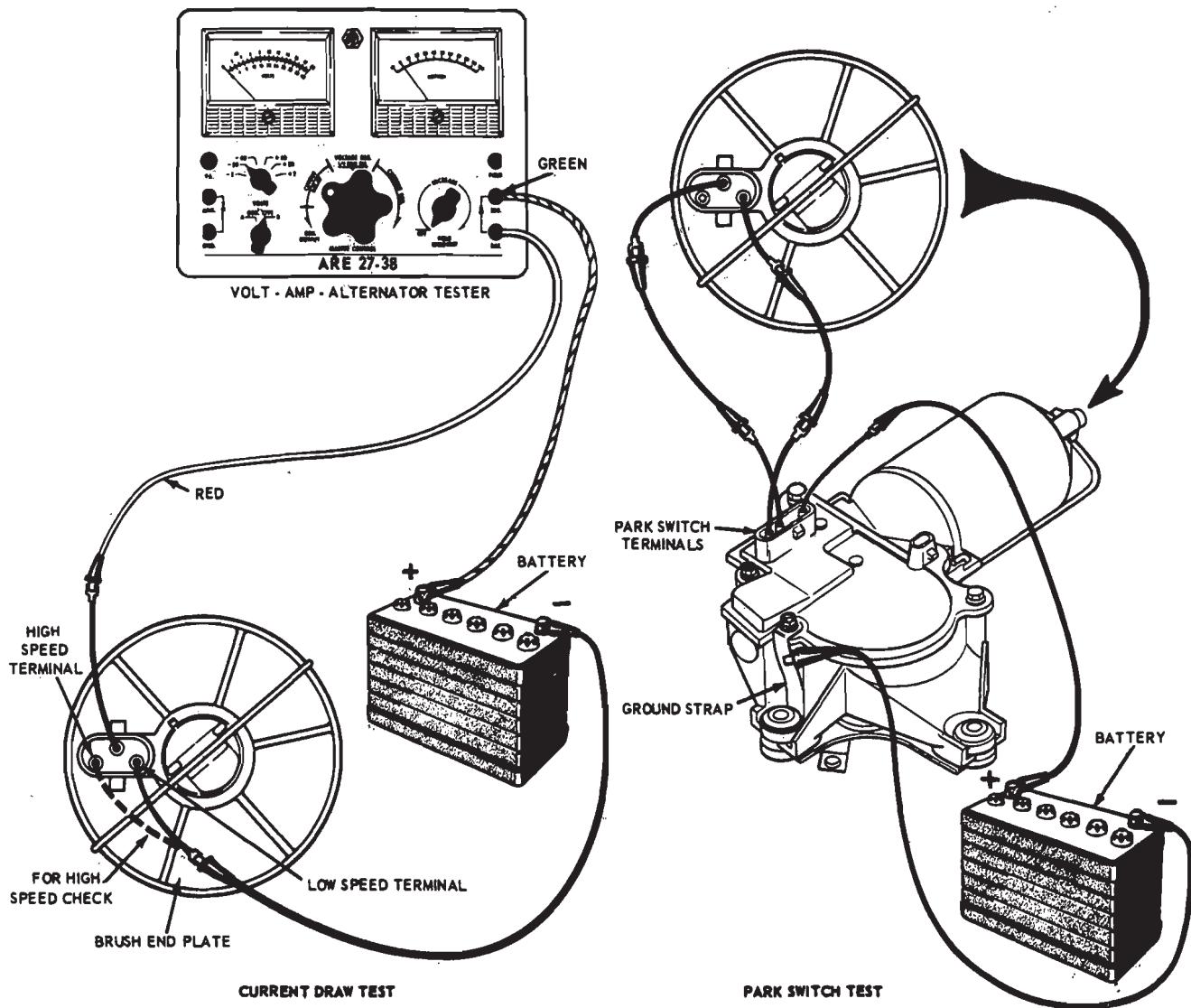


FIG. 10—Windshield Wiper Motor Tests—Depressed Park Type

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does not exist between all the terminals as indicated, replace the switch.

CIRCUIT BREAKER TEST

Place the switch in off position and connect the variable resistance unit of a Rotunda Volt-Amp Tester as shown in Fig. 14. The Lincoln Continental switch is shown, but the Ford, Meteor and Mercury switches are connected in the same manner, all using terminals 65 and 763. See Figs. 11 and 12 for terminal identification.

Set the master control to maximum resistance position initially to prevent damage to the circuitry and ammeter.

Low Current Pass Test

Adjust the variable resistance until the ammeter indicates 8 1/4 amperes.

The ammeter should indicate the specified current for ten minutes. If the circuit will not indicate specified current for ten minutes (current drops to zero), replace the switch.

High Current Pass Test

Adjust the master control until the ammeter indicates 16 1/2 amperes. The circuit should open within 30 seconds (current drops to zero); otherwise the switch must be replaced.

MOTOR REMOVAL AND INSTALLATION

Disconnect the battery ground cable.

Remove the wiper arm and blade assemblies from the pivot shafts.

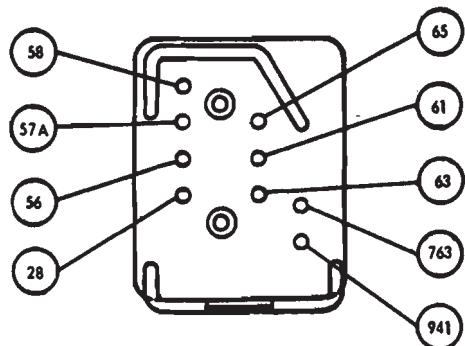
On Ford and Meteor, remove the

cowl top grille (ten screws) for access to the linkage and electrical connections on the inner side of the dash panel. On Lincoln Continental, remove the left cowl screen (four screws) for access through the cowl opening. Disconnect the linkage drive arm from the motor output arm crankpin by removing the retaining clip. Disconnect the two (push-on) wire connectors from the motor.

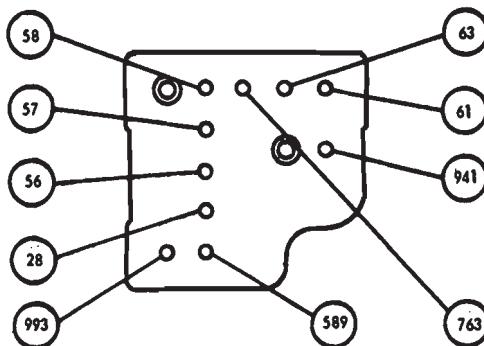
From the engine side of the dash, remove the three bolts that retain the motor to the dash and remove the motor. If the output arm catches on the dash during removal, handturn the arm clockwise so that it will clear the opening in the dash.

Before installing the motor, be sure that the output arm is in park position as outlined under Moving Output Arm to Parked Position.

FORD AND METEOR - STANDARD SYSTEM



FORD AND METEOR - INTERMITTENT SYSTEM

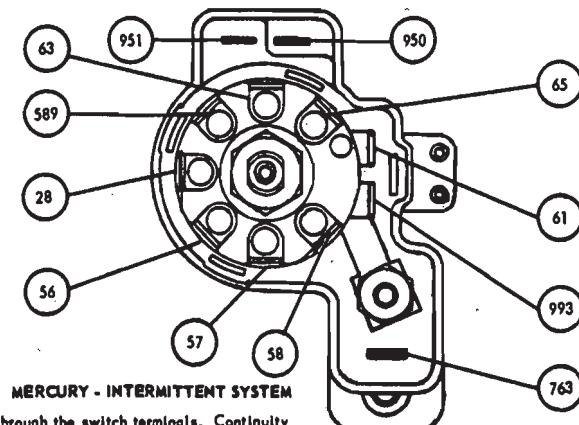
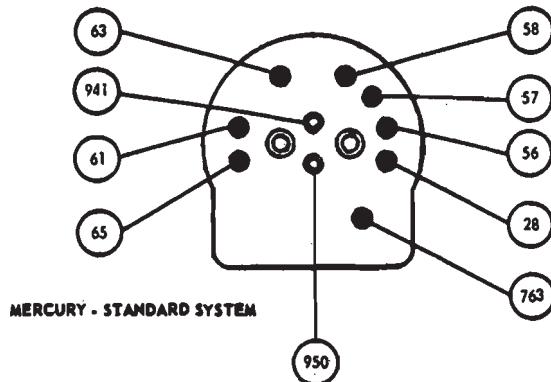


Using a self-powered test lamp or Rotunda ohmmeter, check the continuity through the switch terminals. Continuity should exist only as indicated in the following charts. Replace the switch if it does not meet the specified requirements.

SWITCH POSITION	CONTINUITY BETWEEN TERMINALS	COLOR CODE OF WIRING TO WIPER SWITCH	SWITCH POSITION	CONTINUITY BETWEEN TERMINALS	COLOR CODE OF WIRING TO WIPER SWITCH
OFF (PARK)	65 - 763 61 - 63 28 - 56	28 Black 56 Blue 57-A Black	OFF (PARK)	28 - 56 61 - 63	28 Black 56 Blue
WIPER LOW/WASHER ON	61 - 65 - 763 - 941 56 - 57 - A	58 White 61 Yellow	INTERMITTENT	763 - 61 589 - 28 993 - 57	57 Black 58 White 61 Yellow
HIGH	61 - 65 - 763 57 - A - 58	63 Red 65 Green 763 Orange-White 941 Black-White	LOW	763 - 61 56 - 57	63 Red 589 Orange
			HIGH	763 - 61 57 - 58	763 Orange-White 993 Brown-White
			WASHER ON	763 - 941	

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FIG. 11—Wiper Switch Continuity Test Connections—Ford and Meteor

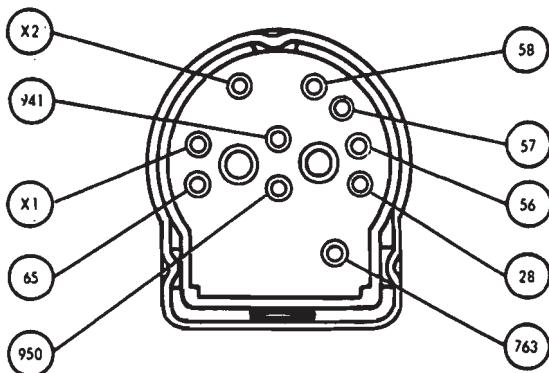


Using a self-powered test lamp or Rotunda ohmmeter, check the continuity through the switch terminals. Continuity should exist only as indicated in the following charts. Replace the switch if it does not meet the specified requirements.

SWITCH POSITION	CONTINUITY BETWEEN TERMINALS	COLOR CODE OF WIRING TO WIPER SWITCH	SWITCH POSITION	CONTINUITY BETWEEN TERMINALS	COLOR CODE OF WIRING TO WIPER SWITCH
OFF (PARK)	763 - 65 61 - 63 28 - 56	28 Black 56 Blue 57 Black	OFF (PARK)	763 - 65 28 - 56 61 - 63	28 Black 56 Blue 57 Black
LOW	763 - 61 - 65 56 - 57	58 White 61 Yellow 63 Red	INTERMITTENT	763 - 61 - 65 28 - 589 57 - 993	58 White 61 Yellow 63 Red 65 Green
HIGH	763 - 61 - 65 57 - 58	65 Green 763 Orange-White	LOW	763 - 61 - 65 56 - 57	589 Orange 763 Orange-White
WASHER ON	763 - 65 941 - 950	941 Black 950 White-Black	HIGH	763 - 61 - 65 57 - 58	950 Green-Black 951 Green
			WASHER ON	763 - 65 950 - 951	993 Brown-White

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FIG. 12—Wiper Switch Continuity Test Connections—Mercury

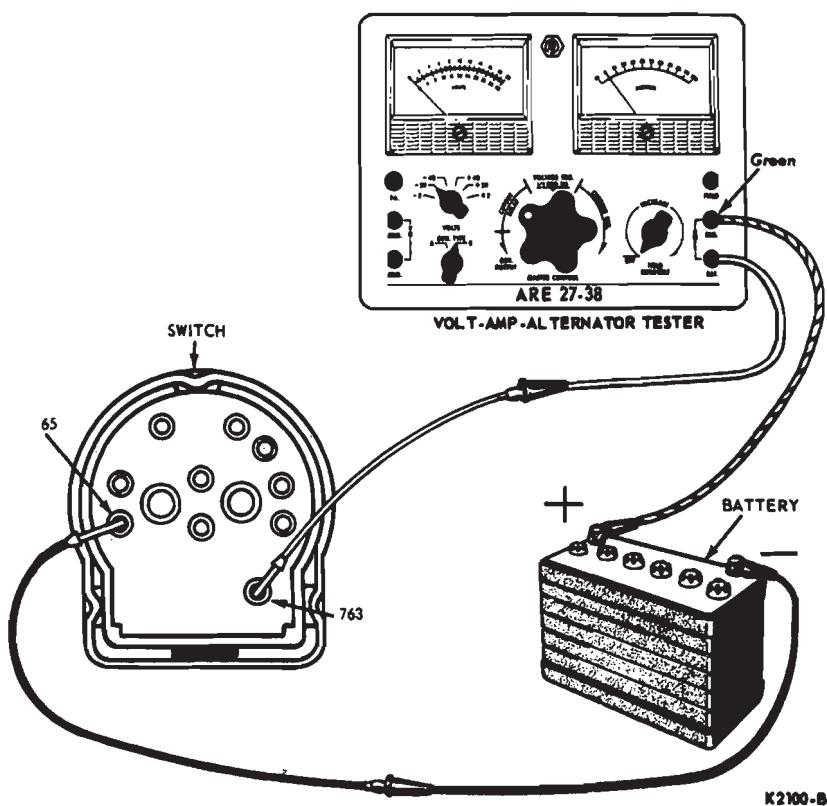


Using a Rotunda ohmmeter, check the continuity through the switch terminals. Continuity should exist only as indicated in the following chart. Replace the switch if it does not meet the specified requirements.

SWITCH POSITION	CONTINUITY BETWEEN TERMINALS
OFF (PARK)	65-763 28-56 X1-X2
INTERMITTENT	65-763 56-57 56-X2
LOW	X1-X2 ~ (100-900 ohms @ 1st detent and up to 65-763 7000 ohms through 10 detents.) 56-57 56-X1-X2
HIGH	65-763 57-58 58-X1-X2
WASHER ON	941-950

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FIG. 13—Wiper Switch Continuity Test Connections—Lincoln Continental



K2100-B

FIG. 14—Typical Wiper Switch Circuit Breaker Test Connections—Lincoln Continental Shown

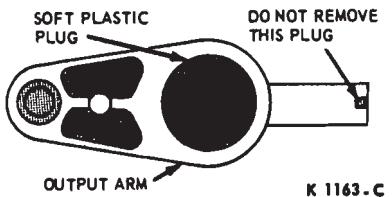


FIG. 15—Output Arm with Soft Plastic Plug Installed

MOTOR PARTS REPLACEMENT

The wiper motor can be serviced as a complete assembly, but all parts can not be serviced. Removal and Installation procedures are given here for those parts that are serviced. To replace any of the following parts the motor has to be removed from the vehicle as outlined in the foregoing procedure.

COVER AND SWITCH ASSEMBLY

Remove the four cover retaining screws and switch, inspect and replace parts if necessary. Be sure to tighten the cover screw that connects the park switch ground strap to the gear box.

BRUSH END PLATE

Carefully observe the original position of the bale clip and pry it off with a screwdriver. Remove the end plate with plug and seal.

When installing the end plate, use a fine wire probe through the hub opening to fit the three commutator brushes into their holders.

OUTPUT ARM, WINDLATCH AND COVER PLATE

Removal

- With a sharp pointed tool, puncture and pry off the soft plastic plug from the upper surface of the arm (Fig. 15).

- Remove the retaining bolt from the shaft, being certain not to rotate the shaft.

- Remove the arm from the shaft with a suitable puller (Fig. 16). Do not attempt to drift the arm from the shaft.

- Note the correct positioning of the windlatch in its guide for proper reassembly (Fig. 17). Lift the plastic windlatch out of the integral cover plate and guide.

- Unclip the windlatch spring from the guide and remove it (Fig.

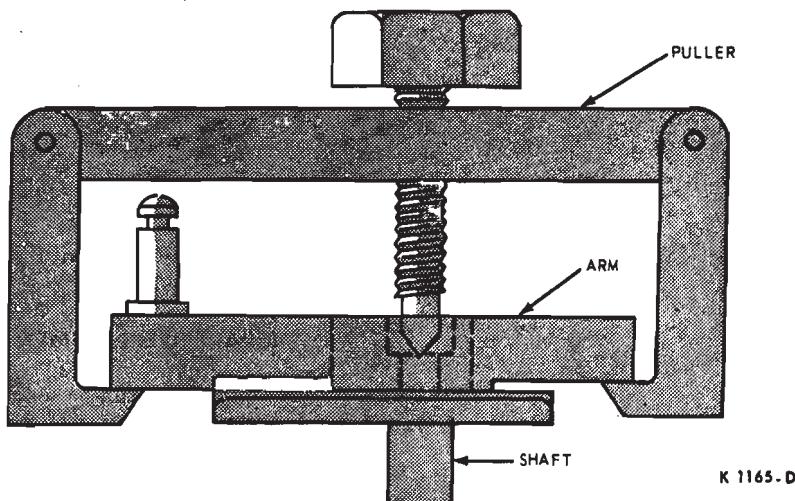
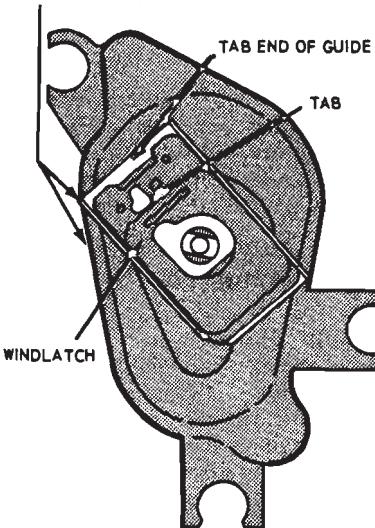


FIG. 16—Removing Output Arm From Shaft with Puller

INTEGRAL COVER PLATE AND WINDLATCH GUIDE



K 1166-G

FIG. 17—Windlatch Installation

18).

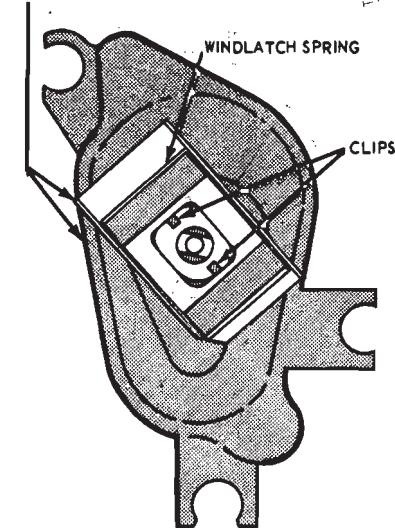
Installation

1. Snap the windlatch spring in place (Fig. 18).

2. If the windlatch is not lubricated, apply Lubriplate to both sides of the windlatch. (Replacement units are supplied lubricated). Position the windlatch in the integral cover plate and guide as shown in Fig. 17.

3. Position the arm and cam assembly on the shaft so that the locating marks are aligned (Figs. 19 and 20). Note that the service replacement arm (Fig. 20) comes with the cam pin engaged in the detent. Therefore,

INTEGRAL COVER PLATE AND WINDLATCH GUIDE



K 1167-C

FIG. 18—Windlatch Spring Installation

when installed with the correct cam-to-shaft relationship (marks aligned), the arm will be 180 degrees out of parked position. It will be returned to park position when you perform the final step of this procedure.

4. Draw the arm and cam assembly onto the output shaft with the retaining screw, applying 8-10 ft-lbs of torque. Before tightening the screw, however, slide the windlatch in its guide to make sure that the upstanding tab clears the underside of the arm as it is being drawn onto the shaft.

5. Install a new soft plastic plug (Fig. 15).

6. Make sure that the output arm is in park position (Fig. 19) as outlined in the following procedure.

MOVING MOTOR OUTPUT ARM TO PARK POSITION

Before attempting to install the motor in the vehicle, be sure that the output arm is in the park position as shown in Fig. 19. If it is not in park position as in the case of the service replacement (Fig. 20), proceed as follows:

1. Place the motor on the left fender near the feed wires at the dash panel.

2. Temporarily connect the motor to the feed wires (2 plugs).

3. Ground the motor by connecting a jumper wire from the ground strap to the body.

4. Move the control switch lever in the vehicle to operate the motor. The output arm and cam will move together in clockwise rotation.

5. Allow the arm and cam to move at least one full revolution, and then move the control switch to off position. This action will actuate the parking switch which reverses the current flow in the motor causing the arm and cam to reverse direction of rotation. The arm now moves in a counterclockwise direction until it is stopped by the windlatch tab. The cam continues to turn independently of the arm forcing the pin to slide up the ramp and out of the cam detent. By the time the cam detent has moved 180 degrees from its pin, the cam action has caused a channel in the undersurface of the arm to completely engage the windlatch tab. At this point, the switch mechanism breaks the circuit stopping the motor. The arm is now in parked position (Fig. 20), and the motor is ready to be installed in the vehicle.

PIVOT SHAFT AND LINK ASSEMBLY REMOVAL AND INSTALLATION**FORD, METEOR AND MERCURY**

Disconnect the battery and remove the wiper arm and blade assemblies from the pivot shafts as described in Section I of this part.

Remove the cowl top grille for access to the linkage connections.

The right pivot shaft and link assembly (on Mercury vehicles) has to be removed before the left assembly or the drive arm and plate assembly

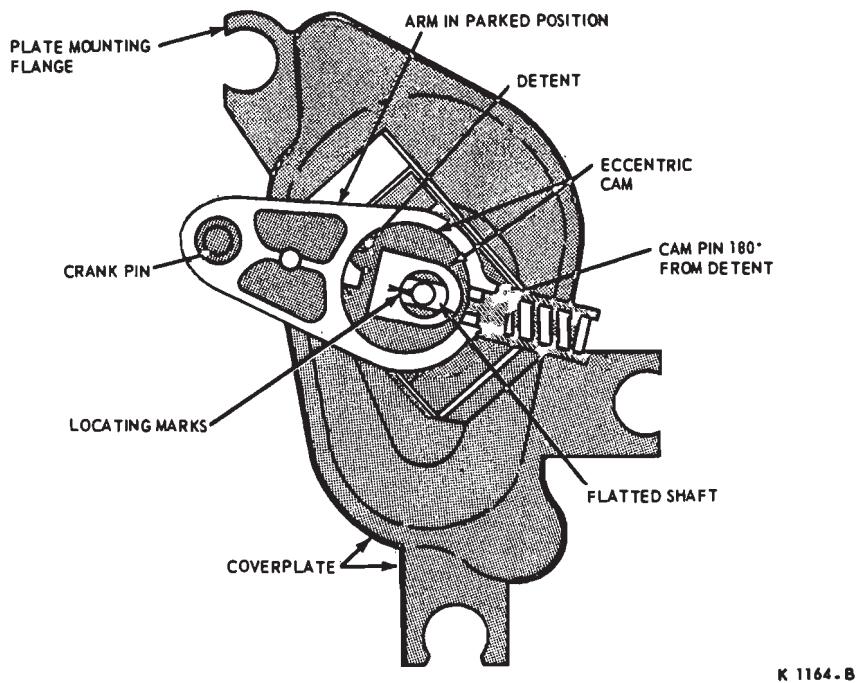


FIG. 19—Windshield Wiper Motor Output Arm in Parked Position

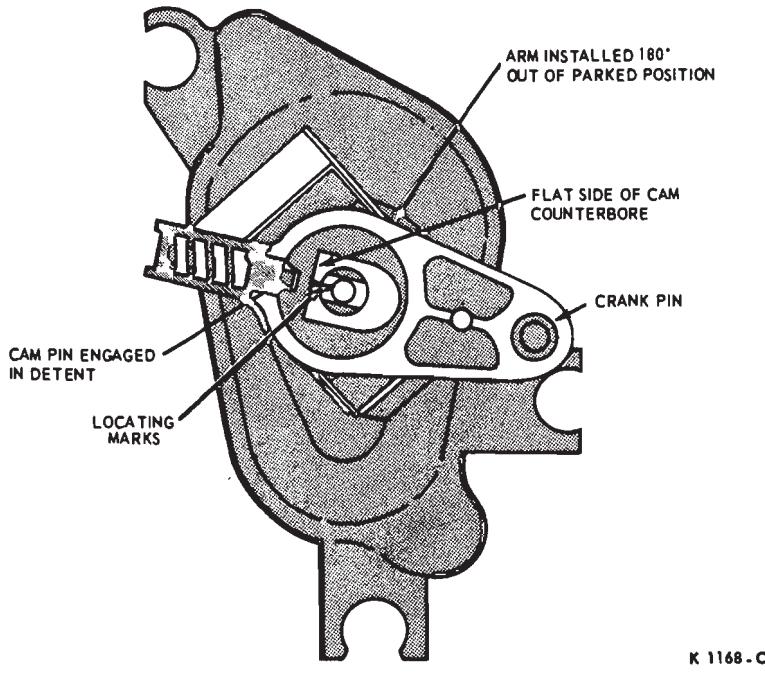


FIG. 20—Service Replacement Arm Installation

can be removed. Remove the three retaining screws at the right pivot shaft, and disconnect the right link from the plate assembly on the inner side center of the dash panel by removing the retaining clip. Lift the pivot and link assembly out of the cowl opening. Remove the three retaining screws at the left pivot shaft and disconnect the left link from the plate assembly by removing the retaining clip. Lift the

left pivot and link out of the cowl opening.

The drive arm and plate is serviced as one assembly. Disconnect the drive arm from the motor (one clip), remove the four screws retaining the pivot plate assembly to the dash (center) and remove the entire assembly through the cowl opening.

On Mercury vehicles, install the drive arm and plate assembly first;

then the left pivot shaft and link assembly; and, lastly, install the right pivot shaft and link. Tighten the pivot plate and pivot shaft assembly retaining bolts to 3-7 ft-lbs torque. When installing the linkage connecting clips, be sure to force the clip locking flange into locked position as shown in Fig. 21.

LINCOLN CONTINENTAL

Disconnect the battery and remove the windshield wiper arm and blade assemblies from the pivot shafts as described in Section I of this part. Remove the cowl screens for access to the linkage.

Disconnect the left linkage arm from the drive arm by removing the clip, remove the three bolts retaining the left pivot shaft assembly to the cowl, and remove the left arm and pivot shaft assembly through the cowl opening.

Disconnect the linkage drive arm from the motor crank pin by removing the clip, remove the three bolts that connect the drive arm pivot shaft assembly to the cowl, and remove the pivot shaft drive arm and right arm as an assembly.

When installing the pivot shaft assembly retaining bolts, tighten them to 3-7 ft-lbs torque. When installing the linkage connecting clips, be sure to force the clip locking flange into locked position as shown in Fig. 21.

WINDSHIELD WIPER SWITCH REMOVAL AND INSTALLATION

FORD AND METEOR

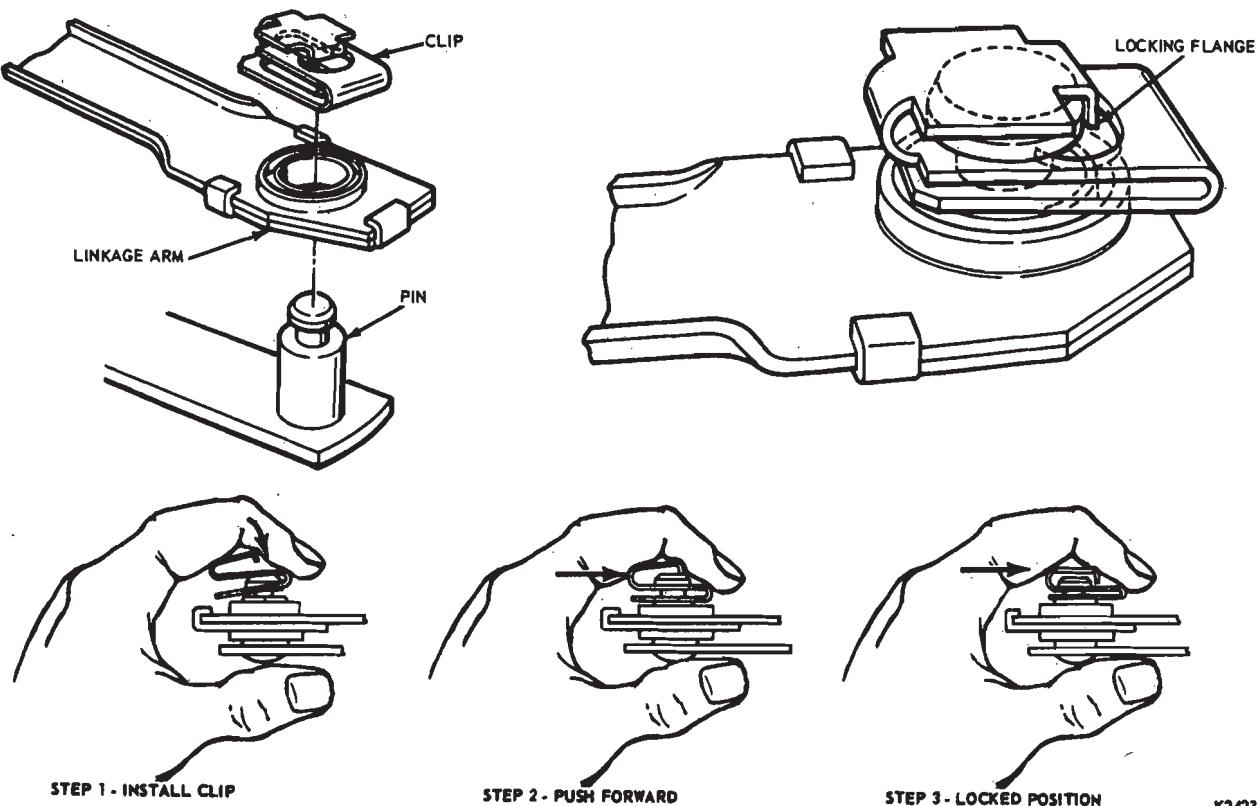
Disconnect the battery and remove the two-piece cover from the steering column (2 screws).

To allow removal of the cluster trim cover, remove the radio, wiper, washer, interval, heater, and defogger switch knobs and the lighter element. Remove the screw that retains the PRND21 dial cable to the column and loosen the set screw that retains the cable pin in the shaft housing. Remove the retaining screws and cluster trim cover assembly.

Remove the two screws that retain the switch to the cluster, lower the switch, and disconnect the multiple connector and vacuum hose from the switch.

MERCURY

Disconnect the battery. Remove the windshield wiper knob and bezel from



K2423-A

FIG. 21—Installation of Windshield Wiper Linkage Connecting Clips

the switch shaft. Remove the nut that retains the switch to the bracket. Lower the switch from behind the instrument panel, and disconnect the multiple connector and vacuum hoses

from the switch.

LINCOLN CONTINENTAL

Disconnect the battery. Pull the

knob and remove the retaining nut and gasket from the switch shaft. Lower the switch from behind the instrument panel and disconnect the multiple connector.

3 FALCON, MAVERICK, FAIRLANE, MONTEGO, MUSTANG, AND COUGAR WINDSHIELD WIPER SYSTEM

DESCRIPTION AND OPERATION

The windshield wipers are actuated by a permanent magnet, rotary type electric motor. The two wiper arms and blades are mounted on a pivot shaft, one at each side of the windshield. The pivot shafts are connected to the motor by linkage arms and attaching clips.

MOTOR CURRENT DRAW TEST

Disconnect the linkage from the motor and disconnect the electrical plug to test the motor on the vehicle. Connect the green lead from the test equipment to the battery positive post (Fig. 22). Connect the positive (red) lead from the tester first to the low

speed connection and then to the high speed connections at the connector plug as shown. In either case, the current draw should not exceed 3 amperes.

MOTOR PARK SWITCH TEST

Stop the wiper system with the ignition switch so that the wiper blades are not in park position. Connect jumper wires as shown in Fig. 23. The wipers should not run more than one full cycle and then park. If the motor will not park or will not run to park position, replace the park switch. If the motor stops correctly check the windshield wiper manual control switch and the wiring for continuity.

WINDSHIELD WIPER MANUAL CONTROL SWITCH TESTS

CONTINUITY TEST

Check the continuity between terminals of the switch as shown in Fig. 24. For a system without intermittent control either a self powered test light or an ohmmeter can be used.

For a system with intermittent control an ohmmeter must be used. A zero ohms reading indicates continuity between all terminals except between terminals No. 56 and 28 when the switch is in the intermittent position. As the switch knob is rotated to the left, resistance should begin to show on the ohmmeter and it should

increase to 6000 to 7000 ohms as the knob reaches the extreme left position.

If continuity and/or resistance does not exist between the terminals as indicated in Fig. 24, replace the switch. If continuity does exist as specified, check the wiring and repair or replace as necessary.

CIRCUIT BREAKER TEST

Place the switch in off position and connect the variable resistance unit of a Rotunda Volt-Amp Tester as shown in Fig. 14. The Lincoln Continental switch is shown, but the Falcon, Maverick, Fairlane, Montego, Mustang and Cougar switches are connected in the same manner, except that they use terminals 63 and 763. See Fig. 24 for terminal identification.

Set the master control to maximum resistance position initially to prevent damage to the circuitry and ammeter.

Low Current Pass Test

Adjust the variable resistance until the ammeter indicates 7 amperes. The ammeter should indicate the specified current for ten minutes. If the circuit will not indicate specified current for ten minutes (current drops to zero), replace the switch.

High Current Pass Test

Adjust the master control until the ammeter indicates 14 amperes. The circuit should open within 30 seconds (current drops to zero); otherwise the switch must be replaced.

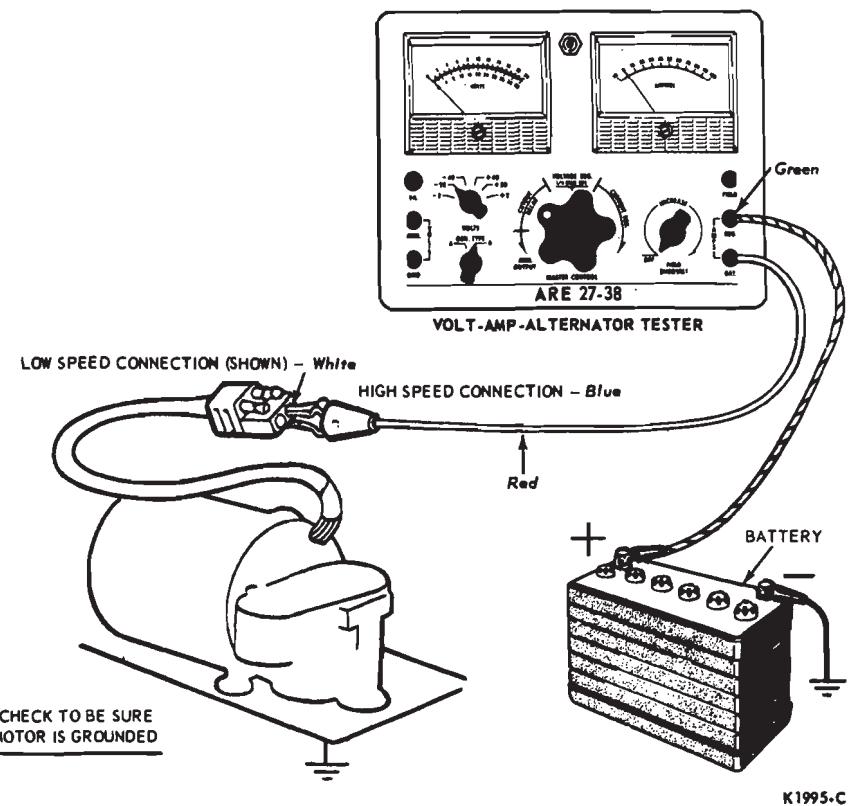
MAVERICK REMOVAL AND INSTALLATION

WIPER MOTOR

On all models, wiper motor removal requires that the instrument cluster be removed first. Follow the instrument cluster removal instructions given in Part 33-03.

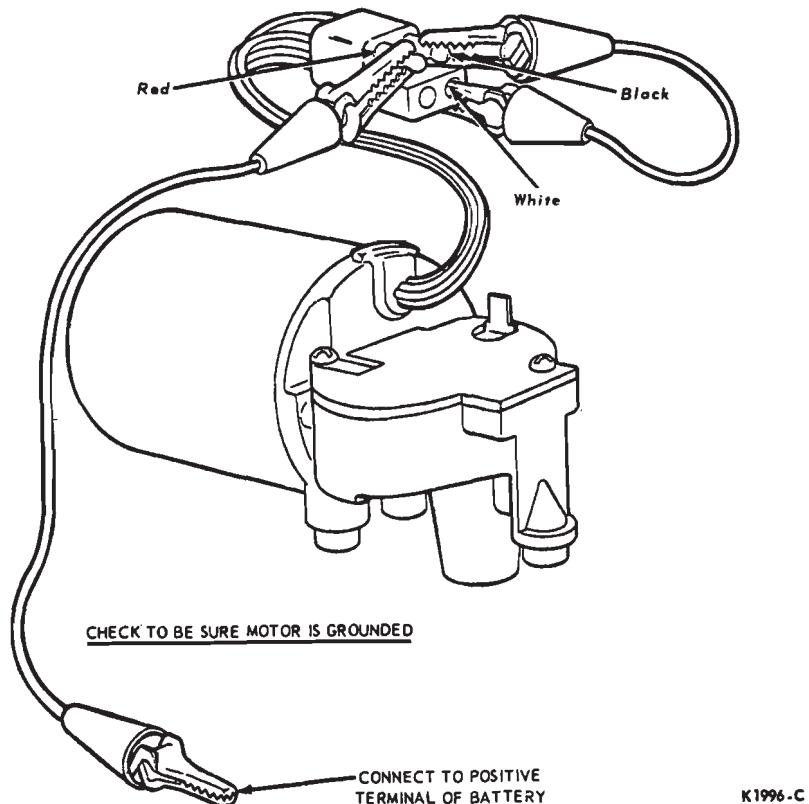
If the vehicle is equipped with air conditioning, the center connector and duct assembly will have to be removed for access to the motor. Remove the mounting bracket screw behind the center duct, disconnect the assembly from the plenum chamber and from the left duct, and pull the center connector and duct assembly out through the cluster opening. See GROUP 34 for illustrations.

Working through the cluster opening, disconnect the two pivot shaft



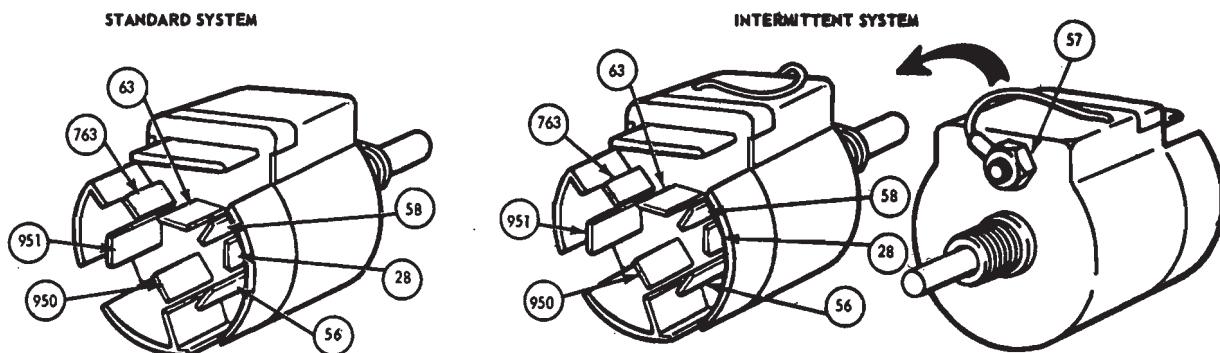
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FIG. 22—Wiper Motor Current Draw Test Connections



K1996-C

FIG. 23—Wiper Motor Park Switch Test Connections



Using a self-powered test lamp or Rotunda ohmmeter, check the continuity through the switch terminals. Continuity should exist only as indicated in the following chart. Replace the switch if it does not meet the specified requirements.

SWITCH POSITION	CONTINUITY BETWEEN TERMINALS
OFF (PARK)	763-63 28-58
LOW	763-63-58
HIGH	763-63-56
WASHER ON	951-950

COLOR CODE OF WIRING TO WIPER SWITCH
28 Black
56 Blue
58 White
63 Red
763 Orange-White
950 White-Black
951 Green-Black

Using a Rotunda ohmmeter, check the continuity through the switch terminals. Continuity should exist only as indicated in the following chart. Replace the switch if it does not meet the specified requirements.

SWITCH POSITION	CONTINUITY BETWEEN TERMINALS
OFF (PARK)	56-28 63-763
INTERMITTENT	56-57 56-28—(6000 to 7000 ohms 63-763 Resistance)
LOW	56-28-57 63-763
HIGH	56-28-57 58-63-763

K1991-C

FIG. 24—Wiper Switch Continuity Test Connections

links from the motor drive arm by removing the retaining clip. Disconnect the wiring plug at the motor, remove the three motor-to-mounting bracket bolts, and take the motor out through the cluster opening.

If the motor is being replaced, transfer the drive arm to the new motor. After installing the motor to the mounting bracket, first connect the right pivot shaft link to the motor drive arm and then connect the left link. When connecting the linkage drive arm to the motor crank pin, be sure that the connecting clip is forced into locked position as shown in Fig. 22.

When installing the center connector and duct assembly on air conditioned vehicles, insert the end near the mounting bracket into the left duct and the opposite end into the plenum chamber. Secure the assembly in place with the mounting bracket screw.

PIVOT SHAFT AND LINK ASSEMBLIES

Left Assembly Removal and Installation

The instrument cluster must be removed for access to the left pivot shaft and link. Follow the instrument

cluster removal instructions given in Part 33-03.

Remove the wiper arm and blade assembly from the pivot shaft as described in Section I of this part. Working through the cluster opening, disconnect both pivot shaft links from the motor drive arm by removing the retaining clip. Remove the three bolts that retain the left pivot shaft assembly to the cowl, and take the left pivot shaft and link assembly out through the cluster opening.

Before installing, cement a new gasket to the pivot shaft mounting flange. Tighten the retaining bolts to 3-7 ft-lbs. After installing the pivot shaft and link assembly to the cowl, first connect the right pivot shaft link to the motor drive arm and then connect the left link. Be sure that the connecting clip is in locked position as shown in Fig. 21.

Right Assembly Removal and Installation

Disconnect the battery and remove the wiper arm and blade assembly from the pivot shaft, as described in Section I of this part.

If the vehicle is equipped with air conditioning, the right duct assembly will have to be removed for access to the right pivot shaft. Unclip the duct

from the right connector and slide the left end out of the plenum chamber. Lower the duct assembly out from under the instrument panel. See GROUP 34 for illustrations.

From under the instrument panel, disconnect first the left and then the right pivot shaft link from the motor drive arm by removing the retaining clip. Reaching between the utility shelf and the instrument panel, remove the three bolts that retain the right pivot shaft and link assembly to the cowl. Lower the assembly out from under the instrument panel.

Before installing, cement a new gasket to the pivot shaft mounting flange. After installing the pivot shaft and link assembly to the cowl, be sure that the right pivot shaft link is connected to the motor drive arm before connecting the left link. Be sure that the connecting clip is in locked position as shown in Fig. 21.

When installing the right duct on air conditioned vehicles, insert the end without the clip into the plenum chamber and fasten the clip end to the right connector.

WINDSHIELD WIPER SWITCH

If the vehicle is equipped with air conditioning, the left duct connector will have to be removed for access to

the switch. Disconnect the left duct from the duct-to-register connector, loosen the two nuts that retain the left register to the utility shelf, and then remove the connector from the register. See GROUP 34 for illustrations.

Release the control knob retaining spring by pressing in through the slot in the knob, and pull the knob from the shaft. Remove the switch retaining nut and lower the switch from under the instrument panel. Disconnect the multiple plug from the switch, and remove the switch from the vehicle.

When installing the control knob, push the knob onto the switch shaft until it is engaged by the retaining spring.

FALCON, FAIRLANE AND MONTEGO REMOVAL AND INSTALLATION

WIPER MOTOR

1. Disconnect the battery ground cable.

2. Disconnect the wiper motor wiring connector.

3. Remove the cowl top left vent screen (4 retaining drive pins).

4. Remove the wiper link retaining clip from the wiper motor arm.

5. Remove the three wiper motor retaining bolts and remove the wiper motor and mounting bracket.

6. Transfer the wiper motor mounting bracket and related parts to the replacement wiper motor.

7. Position the wiper motor and mounting bracket to the dash panel, and install the three retaining bolts.

8. Position the wiper link on the motor drive arm and install the connecting clip. Be sure to force the clip locking flange into locked position as shown in Fig. 21.

9. Install the cowl top vent screen and secure with four drive pins.

10. Check the motor operation and connect the wiring plugs.

PIVOT SHAFT AND LINK ASSEMBLY

1. Open the hood, disconnect the battery ground cable and remove the wiper arm and blade assemblies from their pivot shafts as described in Section I of this part.

2. Remove the cowl top left vent screen (4 retaining drive pins).

3. Remove the drive arm to pivot retaining clip.

4. Remove the three retaining

screws from each pivot and remove the pivot shaft and link assembly.

5. Transfer the right pivot if necessary by removing the connecting clip (the left pivot is part of the link assembly).

6. Position the pivot shaft and link assembly in the cowl, install the pivot shaft retaining screws and tighten to 3-7 ft-lbs torque.

7. Position the left link on the motor drive arm and install the connecting clip. Be sure to force the clip locking flange into locked position as shown in Fig. 21.

8. Install the wiper arms and blades. See Section I of this part.

9. Check the wiper operation.

10. Install the cowl top vent screen and secure with four drive pins.

WINDSHIELD WIPER SWITCH—FALCON

Removal

1. Disconnect the battery ground cable.

2. Remove the wiper/washer switch control knobs and unplug the connectors at the switch.

3. Remove the two switch retaining screws from the cluster and remove the switch from under the instrument panel.

4. Remove the two screws from the switch assembly and separate the washer switch from the wiper switch.

Installation

1. Position the switches together and install the two assembly retaining screws.

2. Position the switch to the back of the cluster and install the retaining screws.

3. Connect the switch connectors and install the control knobs.

4. Connect the battery ground cable and check the operation of the switch.

WINDSHIELD WIPER SWITCH—FAIRLANE AND MONTEGO

1. Disconnect the battery cable.

2. Remove the wiper switch knob, bezel nut, and bezel.

3. Pull out the switch from under the instrument panel. Disconnect the plug connector from the switch and remove the switch.

4. Position the switch and connect the plug connector.

5. Position the switch in the instru-

ment panel and install the bezel, bezel nut, and knob.

6. Connect the battery cable and check the operation of the switch.

MUSTANG AND COUGAR REMOVAL AND INSTALLATION

WIPER MOTOR

Disconnect the battery ground cable.

Remove the wiper arm and blade assemblies from the pivot shafts as described in Section I of this part. Disconnect the washer hose (left side) at the T fitting on the cowl grille. Remove the cowl tip grille (eight screws).

The motor is located inside the left fresh air plenum chamber. Disconnect the motor ground wire (one screw at the forward edge of the plenum chamber). Disconnect the motor wire harness at the plug and push it back into the plenum chamber. Disconnect the linkage drive arm from the motor output arm crankpin by removing the retaining clip.

Rotate the output arm so that the crank pin is toward the right side of the vehicle, remove the three bolts that retain the motor and cover to the mounting bracket, lift off the cover and remove the motor. (If the motor is jammed, remove the mounting bracket and motor together.)

If the motor is being replaced, transfer the plastic cover to the new motor.

Before installing the motor, rotate the output arm 180 degrees (the same relative position necessary to remove the old motor). Before connecting the linkage drive arm to the motor, turn on the ignition to ACC position to allow the motor to go to park position.

When connecting the linkage drive arm to the motor crank pin, be sure that the clip is in locked position as shown in Fig. 21.

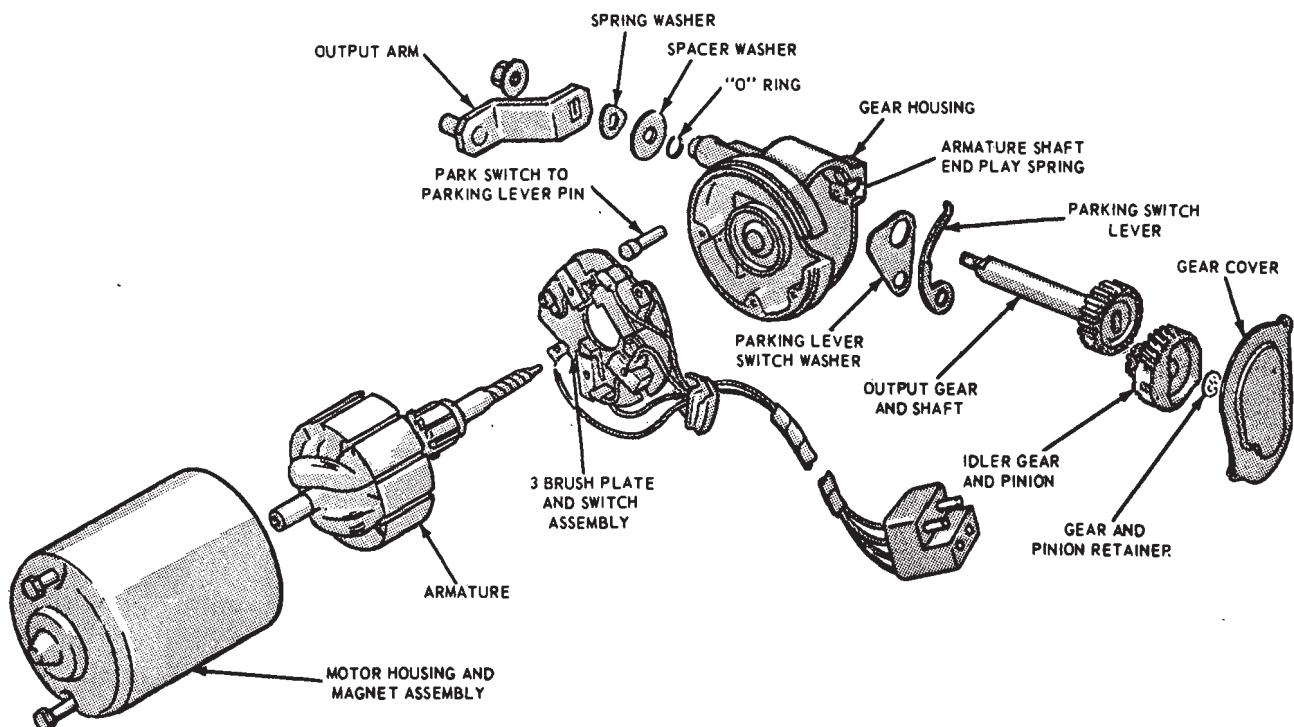
Be sure to tighten the motor ground screw to 48-72 in-lbs torque.

PIVOT SHAFT AND LINK ASSEMBLY

Disconnect the battery ground cable.

Remove the wiper arm and blade assemblies from the pivot shafts as described in Section I of this part. Disconnect the washer hose at the T fitting on the cowl grille. Remove the cowl top grille (eight screws).

Disconnect the linkage drive arm



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FIG. 25—Disassembled Wiper Motor

from the motor output arm crankpin by removing the retaining clip.

Disconnect the right link from the right arm and pivot shaft assembly (one clip), and remove the arm and pivot shaft assembly (three retaining screws).

Remove the three screws retaining the left arm and pivot shaft. Lift out the pivot shaft and arm, the left link and the linkage drive arm as one assembly. The assembly comes out to the right.

When installing the pivot shaft assemblies, tighten the retaining bolts to 3-7 ft-lbs torque.

When installing the linkage, install the left pivot shaft and linkage first. Be sure that the linkage connecting clips are forced into locked position as shown in Fig. 21.

WINDSHIELD WIPER SWITCH

From the passenger side of the instrument panel, remove in order the switch knob, bezel nut and bezel. Pull the switch assembly out from behind the instrument panel, disconnect the plug connector from the rear of the switch, and remove the retainer from the front end of the switch.

Slide the retainer on the front end of the replacement switch, plug in the

connector, and position the switch in the instrument panel. Secure the switch to the panel by installing the bezel and bezel nut. Install the knob.

WIPER MOTOR OVERHAUL

DISASSEMBLY

1. Remove the gear cover retaining screws, ground terminal and cover (Fig. 25).

2. Remove the gear and pinion retainer.

3. Remove the idler gear and pinion and thrust washer.

4. Remove the motor through bolts, motor housing, switch terminal insulator sleeve, and armature. Do not pound the motor housing magnet assembly as the ceramic magnets may be damaged.

5. Mark the position of the output arm with respect to the output shaft, for assembly. Remove the output arm retaining nut, output arm, spring washer, flat washer, output gearshaft assembly, thrust washer, and parking switch lever and parking switch lever washer.

6. Remove the brushes and brush springs.

7. Remove the brush plate and switch assembly, and remove the

switch contact to parking lever pin from the gear housing.

CLEANING AND INSPECTION

1. Clean the gear housing of all old grease. Do not allow any cleaning fluid to contact the armature shaft and output shaft bearings.

2. Wipe all other parts with a clean cloth.

3. Inspect the gear housing for cracks or distortion. Replace a cracked or distorted housing.

4. Check all shafts, bushings, and gears for scored surfaces. Replace damaged parts, and add new grease to the housing and gears.

PARTS REPAIR OR REPLACEMENT

All parts on the two-speed wiper are replaced and not repaired.

ASSEMBLY

1. Install the parking switch lever washer.

2. Install the parking switch lever on the gear and pinion shaft with the cam rider pointing toward the gear housing output shaft hole. Make certain that the lever bottoms against the

casting.

3. Apply a film of Sun Prestige grease to the output gear teeth and shaft bearing surface. Insert the shaft in the bearing. Make certain that the parking switch lever is clear of the cam and gear assembly.

4. Place the spacer washer and spring washer on the shaft, position the output arm on the shaft in the marked position from which it was removed, and install the mounting nut.

5. Position the brush springs and brushes in the holders and wrap wire

around them to hold them in the fully retracted position. Push the insulated brush connector onto the switch terminal.

6. Place the switch-contact to parking-lever pin in the gear housing. Position the brush plate assembly to the housing and install the mounting screws.

7. Apply Sun Prestige grease to the ball bearing in the end of the armature shaft. Position the armature shaft in the gear housing and remove the brush retracting wires.

8. Holding the armature in posi-

tion, install the terminal insulating sleeve, motor housing and magnet assembly, and through bolts. Seal the area where the terminal insulator sleeve seats against the motor and gear housings.

9. Apply Sun Prestige grease to the worm gear and idler gear, and install the idler gear, thrust washer and retainer.

10. Apply a generous amount of Sun Prestige grease to the area around the end of the armature shaft. Install the gear housing cover and ground terminal.

4 THUNDERBIRD AND CONTINENTAL MARK III WINDSHIELD WIPER SYSTEM

DESCRIPTION AND OPERATION

The system is powered by a two-speed, oscillating type, electric motor which is mounted on the cowl panel. The drive link and pivot plate assembly has two integral links and is bolted to the right side of the cowl panel. One of the links connects to the motor crank pin; the other connects to the right pivot shaft assembly. A third link, integral with the left pivot shaft assembly, also connects to the right pivot shaft.

MOTOR CURRENT DRAW TEST

Remove the motor from the vehicle as outlined in this section. Connect a jumper wire between the two female terminals (blue to white) in the connector plug, connect the motor ground wire to the battery negative post, and connect one of the tester leads to the battery positive post (Fig. 26). To check low speed current draw, connect the other tester lead to both male terminals (red and yellow) in the connector plug as shown. To check high speed current draw, remove the tester lead from the red terminal and connect it to the yellow terminal only. In either speed, the current draw should not exceed 3 amperes.

MOTOR PARK SWITCH TEST

Remove the motor from the vehicle as outlined in this section. Connect jumper wires between the park switch terminals and the connector plug, and between the motor and battery as shown in Fig. 26. If the motor moves to park position, it is OK. Check the

manual control switch and all pertinent wiring for continuity. If the motor does not park, replace it.

WINDSHIELD WIPER MANUAL CONTROL SWITCH TESTS

CONTINUITY TEST

Check the continuity between terminals of the switch as shown in Fig. 27. (As an alternate procedure plug a known good switch into the wiring harness and operate). If the switch is good, check the continuity of the wires and repair or replace the wiring as necessary. If continuity does not exist between all the terminals as indicated, replace the switch.

CIRCUIT BREAKER TEST

Turn the switch to OFF position and connect the variable resistance unit of a Rotunda Volt-Amp Tester as shown in Fig. 14. The Lincoln Continental switch is shown, but the Thunderbird and Continental Mark III switches are connected in the same manner, both using terminals 65 and 763. See Fig. 27 for terminal identification.

Set the master control to maximum resistance position initially to prevent damage to the circuitry and ammeter.

Low Current Pass Test

Adjust the variable resistance until the ammeter indicates 7 1/2 amperes. The ammeter should indicate the specified current for ten minutes. If the circuit will not indicate specified current for ten minutes (current drops

to zero), replace the switch.

High Current Pass Test

Adjust the master control until the ammeter indicates 15 amperes. The circuit should open within 30 seconds (current drops to zero); otherwise the switch must be replaced.

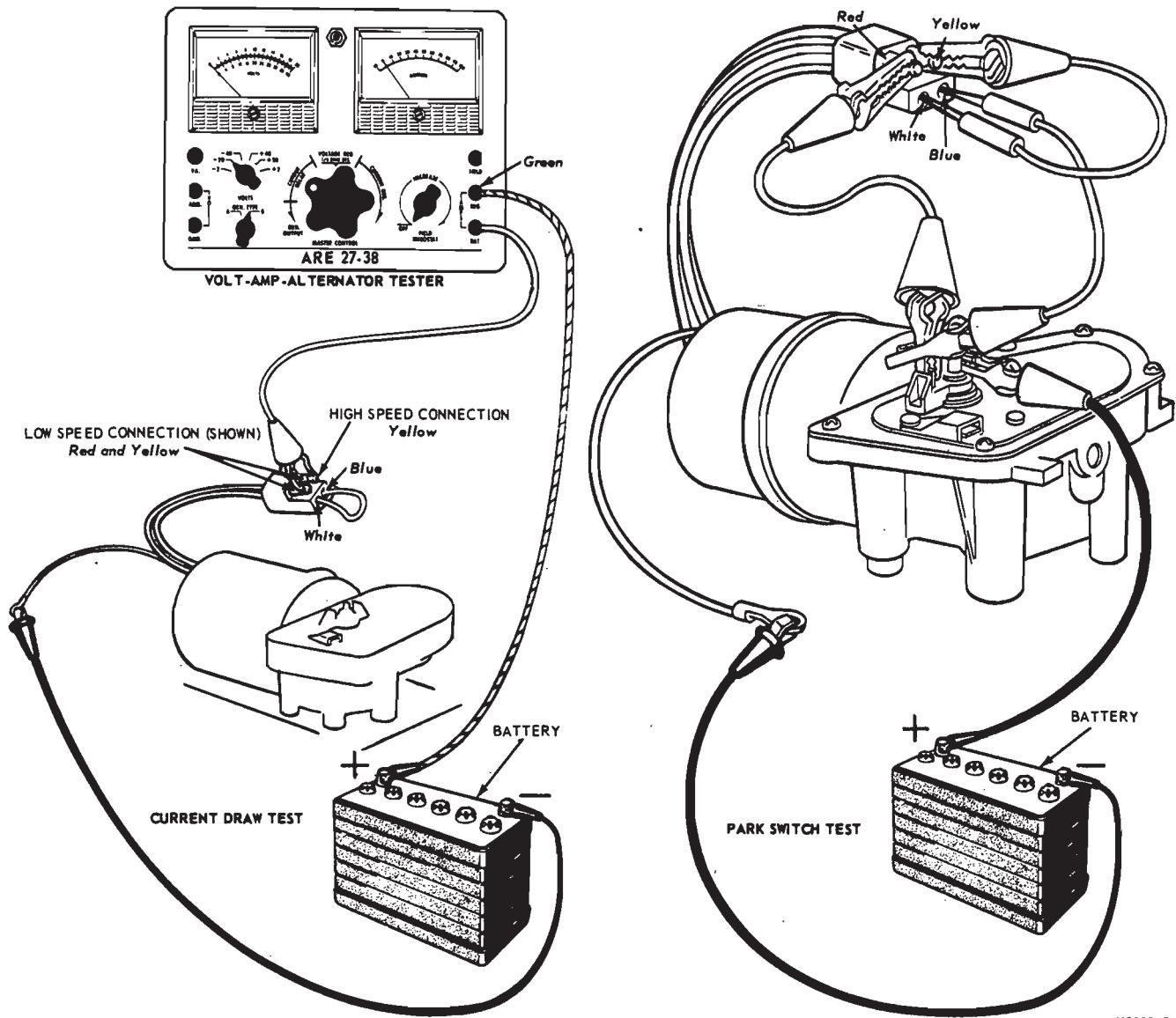
WIPER MOTOR REMOVAL AND INSTALLATION

Disconnect the battery ground cable. Disconnect the washer hose, remove three retaining bolts and pull the cowl top grille out from under two clips.

Disconnect the connector plug (2 plugs with intermittent wiper) from the wiring harness at the engine side of the dash panel. Push the wiring and plug(s) along with the grommet through the opening in the dash panel.

Remove the four motor-to-cowl retaining bolts. Lift the motor out and, at the same time, pull the wiper arm and blade assembly to the left for access to the motor crank pin clip. Remove the clip and disconnect the drive link from the motor crank pin. Remove three retaining bolts and separate the motor from the mounting plate and cover and wiring harness assembly. If the motor is being replaced, transfer the mounting plate and cover and harness assembly to the new motor.

Before mounting the motor to the cowl panel route the wiring harness through the opening in the dash panel and pull the grommet in place. When connecting the motor crank pin to the



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FIG. 26—Windshield Wiper Motor Tests—Oscillating Type

drive link be sure to force the connecting clip into locked position as shown in Fig. 21.

PIVOT SHAFT AND LINK ASSEMBLY REMOVAL AND INSTALLATION

Disconnect the battery ground cable. Disconnect the washer hose, remove the three retaining bolts, and pull the cowl top grille out from under the two clips. Remove the wiper arm and blade assembly from the pivot shaft to be removed. See Section I of this part.

To remove the left pivot shaft, loosen the right pivot shaft retaining bolts, and remove the left pivot shaft retaining bolts. Remove the connecting clip and disconnect the left pivot

shaft link from the right pivot shaft crank pin. Work the left pivot shaft and link assembly toward the right and out of the cowl opening.

To remove the right pivot shaft, remove the three retaining bolts, and disconnect the linkage from the crank pin by removing the clip. Lift the pivot shaft assembly from the cowl.

When installing the pivot shaft assemblies, tighten the retaining bolts to 3-7 ft-lbs torque. When connecting the links to the right pivot shaft assembly, connect first the drive link and then the left pivot shaft link to the crank pin on the right pivot shaft assembly. Secure the links by installing the retaining clip. Be sure that the clips are forced into locked position as shown in Fig. 21.

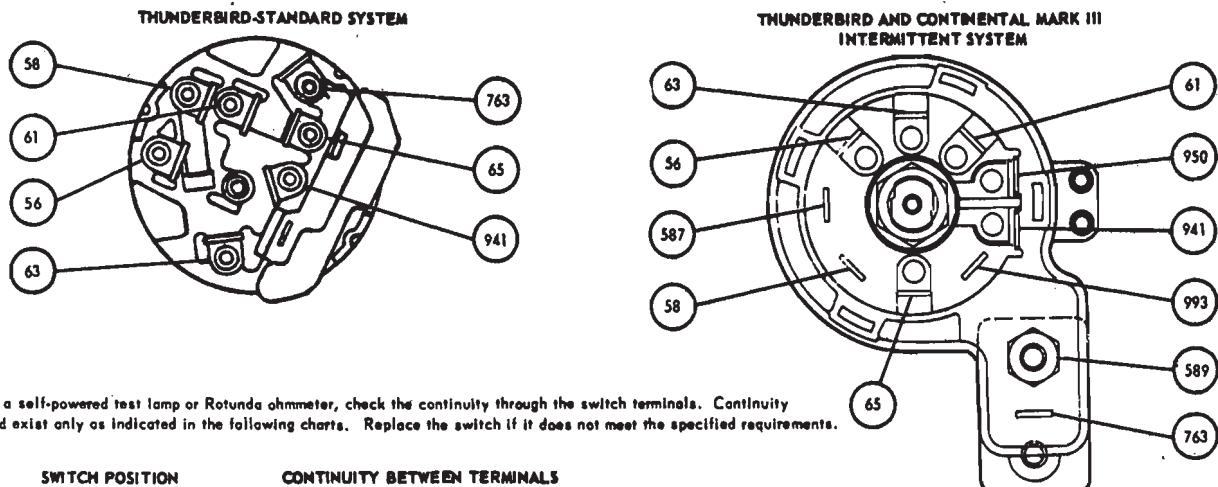
WINDSHIELD WIPER SWITCH REMOVAL AND INSTALLATION

1. Disconnect the battery ground cable.

2. Remove five screws retaining the upper edge of the instrument cluster pad and retainer assembly to the instrument panel pad, and remove the pad and retainer assembly from the face of the instrument cluster.

3. Remove the three screws retaining the rear vent and wiper control pod, and pull the pod from the instrument panel. Unplug the electrical connector, and remove the illumination bulbs.

4. Remove the control knobs. Remove the two screws retaining the windshield wiper switch and remove the switch.



Using a self-powered test lamp or Rotunda ohmmeter, check the continuity through the switch terminals. Continuity should exist only as indicated in the following charts. Replace the switch if it does not meet the specified requirements.

SWITCH POSITION
OFF (PARK)

CONTINUITY BETWEEN TERMINALS

65-763
61-58
63-56

763-61-63
56-58

763-61
56-58

763-941

COLOR CODE OF WIRING TO WIPER SWITCHES

56 Blue	589 Orange
58 White	763 Orange-White Stripe
61 Yellow	941 Green (Standard System)
63 Red	941 Black-White Stripe (Intermittent System)
65 Green	950 White-Black Stripe

SWITCH POSITION

OFF (PARK)

CONTINUITY BETWEEN TERMINALS

763-65-589
61-58
63-56
763-61-63-589
56-993
58-587
763-61-63-589
56-58
763-61-589
56-58
941-950

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FIG. 27—Wiper Switch Continuity Test Connections—Thunderbird and Continental Mark III

cable.

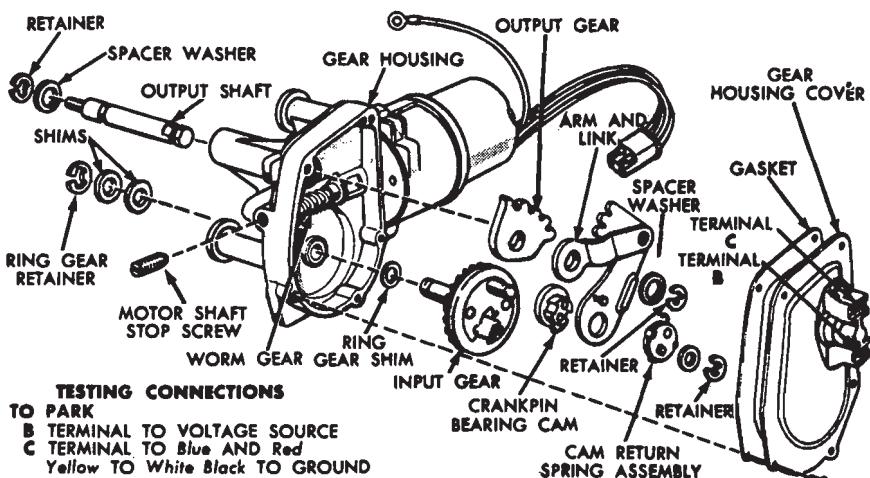
WIPER MOTOR OVERHAUL

DISASSEMBLY

The two-speed electric motor may be disassembled for service of the drive mechanism parts.

1. Remove the gear housing cover plate and gasket (Fig. 28).
2. Remove the output shaft retainer and spacer washer.
3. Remove the crankpin bearing retainer and remove the spacer washer and cam return spring assembly.
4. Remove the arm and link assembly.
5. Remove the crankpin bearing cam.
6. Remove the input gear retainer and outer spacer shim, and remove the input gear and inner spacer shim.
7. Remove the wiper arm lever nut and lock washer.
8. Remove the wiper arm lever and spacer, and remove the output shaft and gear assembly from the housing.
9. The output gear may be removed from its shaft by tapping with a fiber hammer. Be careful not to damage the end of the shaft.

The worm drive gear and armature assembly is not serviced.



TESTING CONNECTIONS

TO PARK
B TERMINAL TO VOLTAGE SOURCE
C TERMINAL TO Blue AND Red
Yellow TO White Black TO GROUND

TO OPERATE AT HIGH SPEED

Yellow TO VOLTAGE SOURCE
Blue TO White Black TO GROUND
B AND C TERMINALS
AND Red NO CONNECTION

TO OPERATE AT LOW SPEED
Red AND Yellow TO VOLTAGE SOURCE
Blue TO White Black TO GROUND
B AND C TERMINALS NO CONNECTION

K1090-D

FIG. 28—Two-Speed Wiper Motor—Oscillating Type

5. Position the new switch to the control pod assembly and install the two retaining screws. Install the control knobs.

6. Plug in the electrical connector, and install the illumination bulbs.

7. Position the control assembly to the instrument panel and install the three retaining screws.

8. Install the instrument cluster pad and retainer assembly.

9. Connect the battery ground

CLEANING AND INSPECTION

1. Clean the gear housing of all old grease. Do not allow any cleaning fluid to contact the armature shaft and output shaft bearings.
2. Wipe all other parts with a clean cloth.
3. Inspect the gear housing for cracks or distortion. Replace a cracked or distorted housing.
4. Check all shafts, bushings, and gears for scored surfaces. Replace damaged parts.

ASSEMBLY

1. Tighten the motor cover. Adjust the motor shaft end play to 0.000-0.005 inch by turning the shaft stop screw. Measure with a feeler gauge between the stop screw and the motor shaft.
2. Install the input gear shim on the input gear shaft and install the gear in the housing. Adjust the end play to 0.005 to 0.010 inch by adding or removing shims under the input

gear retainer. Install the retainer.

3. Install the output gear on the output shaft. Make sure that the gear is bottomed on the shaft.

4. Install the output shaft and gear assembly into the housing with the gear teeth facing the motor. Install one spacer washer to the outside end of the output shaft and assemble the wiper arm lever to the output shaft, with the linkage studs facing away from and above the shaft. Secure the lever with a lock washer and nut.

5. Place the bearing cam on the crankpin with the small diameter portion of the cam facing outward.

6. Install the arm and link assembly to the bearing cam. As the arm is placed on the shaft, the gears must be meshed and the link which is riveted to the arm must be installed to the output shaft at the same time. Proper gear indexing is obtained when the bottom tooth of the arm and gear segment will be in mesh with the bottom valley of the output shaft gear.

7. Install the output shaft spacer

washer and retainer. Check the end play of the output shaft (0.005-0.010 inch). Remove or install spacer washers under the shaft retainer to adjust the end play.

8. Install the cam return spring assembly.

9. Install the bearing spacer and retainer. If the retainer cannot be installed, one or more coils of the spring clutch are probably out of place. If the bearing has excessive end play on the crankpin, the projection of the bearing may ride out of the semi-circular slot in the end plate. Add spacer washers under the retainer if necessary.

10. Apply generous amounts of Sun Prestige grease to all moving parts. Install the gear housing cover plate.

When operating the unit on the bench, do not place hands or fingers between the wiper lever and the case, or inside the gear housing, as considerable power is developed by the gear reduction.

5 INTERMITTENT WIPER GOVERNOR—VACUUM OPERATED—FORD, METEOR, MERCURY, THUNDERBIRD AND CONTINENTAL MARK III

DESCRIPTION AND OPERATION

The intermittent wiper governor is an electro-pneumatic switch that controls the motor to provide intermittent wiping action.

Wiper operation on the Mercury, Thunderbird and Continental Mark III, is controlled by a dual knob. Turning the outer or large knob to the center position shuts the system off. Turning the outer knob fully clockwise causes the wipers to move at constant high speed. When the outer knob is moved fully counter-clockwise, the wipers go into the intermittent lower speed range. The intermittent wiper action is then controlled by the inner or small knob.

Wiper operation on the Ford and Meteor is controlled by a lever and a single knob. When the lever is in center position, the system is shut off. Moving the lever to the two positions left of center causes the wipers to move at constant low and constant high speeds. When the lever is moved fully to the right, the wipers go into the intermittent low speed range. The

intermittent action is then controlled by the single knob.

The wiper governor provides selection of either varying dwell between wipe cycles or continuous wiper action thru application of variable opposing vacuum and pressure within the system.

With the control selector in the instrument panel turned to intermittent wiper control, engine manifold vacuum is applied to the upper chamber of the governor (Sketch I, Fig. 29). Atmospheric pressure in the lower chamber then moves the diaphragm upward. Simultaneous rotation of the governor valve cam thru the spiral action of the follower applies manifold vacuum to the diaphragm of the normally closed electrical switch. The switch diaphragm is moved downward compressing the diaphragm spring and moving the switch into the park position. The wiper blades then move to the park position and remain there. (Sketch II, Fig. 29).

Rotation of the governor valve cam that applied vacuum to the governor switch also opened the upper governor

chamber to atmosphere. The compressed diaphragm spring applies downward pressure to the diaphragm creating higher than atmospheric pressure in the lower chamber. This is allowed to bleed off thru a variable orifice in the control selector. The size of this orifice is determined by the position of the intermittent selector (inner knob) and establishes the length of wiper cycle dwell (Sketch II, Fig. 29).

As the diaphragm moves downward the governor valve cam is rotated thru the spiral action of the cam follower opening the lower chamber of the electrical switch diaphragm to atmosphere. The compressed diaphragm spring moves the switch into the closed position, actuating the wiper motor. Simultaneously, the rotational movement of the valve cam applies manifold vacuum to the upper chamber of the governor, thus beginning a new cycle.

If the engine is subjected to sudden acceleration as in passing, the available manifold vacuum will be greatly reduced. When the vacuum loss be-

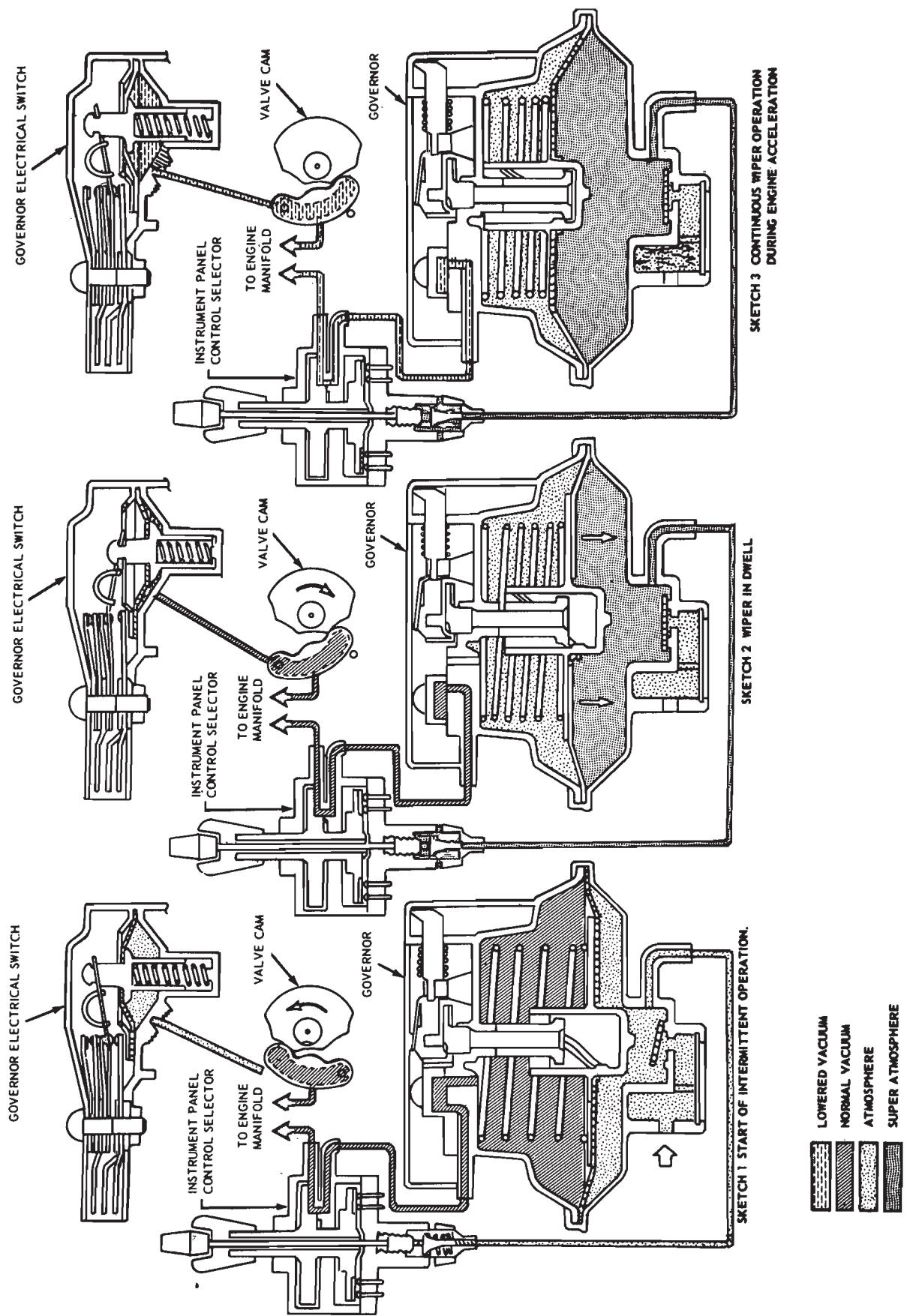


FIG. 29—Electro-Pneumatic Governor For Intermittent Windshield Wiper

comes sufficient to allow the electrical switch diaphragm spring to overcome the vacuum, the switch will be moved to the closed position providing continuous wiper operation. This will continue until the engine has returned to an operating condition that will provide normal manifold vacuum. The wipers will then return to whatever wiper cycle dwell had been previously selected.

In the same manner as above, under engine acceleration, if any loss of vacuum or pressure in the intermittent control system occurs due to a mechanical failure or malfunction, the

wipers will automatically shift to continuous operation, thereby rendering the system fail safe (Sketch III, Fig. 29).

REMOVAL AND INSTALLATION

The electro-pneumatic governor and the control selector switch are serviced as assemblies only. Should any internal component become damaged the complete assembly must be replaced.

In the event of suspected partial or total blockage of internal passages, light air pressure may be applied in

an attempt to remove the cause of blockage.

Although the vacuum hoses are an integral part of the wiring harness assembly, individual hoses may be replaced if required.

To remove the governor, disconnect the four hoses and the multiple connector and remove the mounting screw and washer assemblies.

When installing the unit, connect the hose with the red tracer to the upper fitting. Connect the hose with the white tracer to the lower fitting. Connect the hoses from the Y fitting to the proper fittings on the governor.

6 INTERMITTENT WIPER GOVERNOR—ELECTRONIC CONTROL—MUSTANG, COUGAR, FAIRLANE, MONTEGO AND LINCOLN CONTINENTAL

DESCRIPTION AND OPERATION

The intermittent operation of the windshield wiper motor is controlled by resistance in the windshield wiper control switch which, in conjunction with the electronic pause control (governor), allows a variable pause between wiping cycles.

For normal operation, rotate the wiper-washer knob to the right. The first position is for slow speed and the second is for high speed.

For intermittent operation, rotate the wiper-washer knob to the left. The more the knob is rotated to the left, the greater the resistance in the

switch and the longer the time interval between wiper blade sweeps. The changes of resistance in the switch controls the amount of current to the electronic pause control which, in turn, regulates the operation of the motor for the desired time interval.

TEST

If intermittent operation is unsatisfactory, first check the motor current draw and the control switch and all connecting wires for continuity. If the motor, switch and connecting wires are OK, replace the electronic governor.

REMOVAL AND INSTALLATION

The governor can be removed by disconnecting two connector plugs and removing two screw and washer assemblies. On Mustang and Cougar vehicles, the governor is mounted to a flange at the forward edge of the cowl panel. On Fairlane and Montego vehicles the governor is mounted on the dash panel just inboard of the motor. On Lincoln vehicles, the governor is mounted on the dash panel just outboard of the motor.

7 WINDSHIELD WASHERS

WINDSHIELD WASHER NOZZLE ADJUSTMENT

If an adjustment of the water spray pattern is necessary, use a pair of needle nose pliers and very carefully bend the nozzle. Care is necessary to prevent crimping the nozzle jet openings.

WINDSHIELD WASHER NOZZLE REMOVAL

1. Open the hood. Remove the nozzle assembly bracket retaining

screw from the cowl top grille panel.

2. Carefully slide the nozzle assembly out of its locating hole in the top grille panel.
3. Remove the nozzle assembly from the washer hose.

INSTALLATION

1. Attach the washer hose on the nozzle assembly.
2. Position the nozzle assembly through its locating hole. The nozzle opening should position itself at the third (inboard) cowl top grille panel opening. A small hooked tool can be

used if necessary to help position the nozzle through the cowl top grille opening.

3. Install the nozzle bracket retaining screw.

WINDSHIELD WASHER PUMP—THUNDERBIRD, LINCOLN CONTINENTAL AND CONTINENTAL MARK III

REMOVAL

1. Disconnect the wire connector to the pump motor and remove the hose from the pump. Drain the fluid from

the reservoir.

2. Remove the screws retaining the reservoir to the radiator left support, and remove the reservoir assembly. Drain the fluid from the reservoir.

3. Working through the reservoir filler opening, remove the nut retaining the pump assembly to the reservoir with a 15/16-inch deep socket and extension. Remove the nut and screen assembly from the reservoir, and remove the pump assembly.

INSTALLATION

1. Replace the seal on the pump assembly, if necessary.

2. Position the pump assembly to the reservoir. Fit the rubber seal and plastic washer to the pump from in-

side the reservoir. Install the nut and screen, using a length of hose fitted around the nut and screen assembly to start the nut on the pump threads. Then tighten the socket and extension.

3. Attach the reservoir assembly to the radiator left support with the retaining screws. Connect the wire connector and hose. Fill the reservoir and check washer operation.

WINDSHIELD WASHER PUMP—ALL EXCEPT THUNDERBIRD, LINCOLN CONTINENTAL AND CONTINENTAL MARK III

In this new impeller type washer the pump and motor is mounted at the bottom of the reservoir. The res-

ervoir, pump and motor is serviced as one assembly. The motor and pump can not be serviced separately. A screen in the top of the reservoir keeps out foreign particles. The screen is serviced separately from the washer assembly.

To remove the assembly, disconnect the wire connector and hose, remove the retaining screws, and lift the entire assembly from the left fender apron.